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# The Impact of Mother and Father Stress on Child Externalizing Behaviors

Allison McCobin

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THE IMPACT OF MOTHER AND FATHER STRESS ON CHILD EXTERNALIZING  
BEHAVIORS

A Dissertation

Submitted to the School of Education

Duquesne University

In partial fulfillment of the requirements for  
the degree of Doctor of Philosophy

By

Allison McCobin

August 2018

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Allison McCobin, M.S.

2018

**DUQUESNE UNIVERSITY  
SCHOOL OF EDUCATION**

**Department of Counseling, Psychology, and Special Education**

***Dissertation***

Submitted in partial fulfillment of the requirements for the degree  
Doctor of Philosophy (Ph.D.)

**School Psychology Doctoral Program**

***Presented by:***

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**May 25, 2018**

**THE IMPACT OF MOTHER AND FATHER STRESS ON CHILD EXTERNALIZING  
BEHAVIORS**

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## ABSTRACT

# THE IMPACT OF MOTHER AND FATHER STRESS ON CHILD EXTERNALIZING BEHAVIORS

By

Allison McCobin

August 2018

Dissertation supervised by Kara E. McGoey, Ph.D.

The impact of parental stress on child behavioral problems has often been examined through research. A large majority of research indicates a strong correlation between parenting stress and an increase in child behavioral difficulties. However, most studies have focused only on the impact that one parent's stress has on the child's behavior, rather than both or comparing the two. Using two separate cross-lagged structural equation models, data from the Fragile Families Child and Wellbeing Study (N = 1010) were analyzed to examine the differences between mother and father parenting stress on child externalizing behavior problems over time (ages three and five). Results of the cross-lagged structural equation models provided some support for the hypothesized models, wherein fathers exhibiting high levels of stress did not demonstrate a strong relationship with high levels of externalizing behavior problems in children over time. Additionally, the model supported the hypothesis that parenting stress was the

strongest indicator of overall stress for mothers. Findings also suggested insignificant relationships between parenting stress and externalizing behavior problems for almost all paths within both models. Furthermore, insignificant positive relationships between overall stress and externalizing behavior problems over time were identified in both models. The importance of these findings, limitations of the current study, as well as directions for future research are discussed.

## DEDICATION

This dissertation is dedicated to my family and friends who have loved and supported me throughout this long journey of graduate school. You have stuck by my side through every trial and tribulation, late night and early morning, and loved me every step of the way. I would not be at this finish line if it was not for your unwavering encouragement, guidance, and belief in my abilities over the years. A special dedication of this dissertation is for my father, Michael McCobin. Although he is unable see me reach this milestone, his guidance and wisdom have been my continuous sources of motivation throughout my educational career.

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## **Chapter I: Introduction**

### **Significance of the Problem**

Having children and raising a family is a joyous and exciting time in a parent's life. The responsibilities associated with parenthood can also cause an enormous amount of stress and challenges. In an online survey conducted in 2010 by the American Psychological Association (APA), 73% of respondents indicated that their responsibilities as parents cause them a significant amount of stress. Although a large majority of respondents admitted to high levels of stress, most did not think that their stress had an impact on their child or their child's level of stress (American Psychological Association, 2016). Additionally, research has found that there is a significant positive correlation between a parent's level of stress and their child's level of externalizing behavior problems (e.g., aggression, tantrums, noncompliance, hyperactivity, and impulsivity) (Anthony et al., 2005; Crnic, Gaze, & Hoffman, 2005; Deater-Deckard & Scarr, 1996). Parent stress can be defined as a parent's aversive reaction to a situation based upon a mismatch between the parenting demands and the available parenting resources (e.g., appraisal, coping mechanisms, stress reactions, and social supports) (Deater-Deckard, 1998). Research has found this specific type of stress to be linked with many maladaptive outcomes for children (Crnic, Gaze, & Hoffman, 2005; Deater-Deckard & Scarr, 1996; Yates, Obradovic, & Egeland, 2010). As most parents admit to high levels of stress within their parenting, career, or financial status, it is vital to understand the role that stress has on their children.

Due to recent findings identifying a direct correlational impact parent stress has on child behavior, there is a growing need to explore specific features of this idea. Furthermore, research has identified that as parent stress increases, positive parenting practices have a tendency to

decrease (Deater-Deckard & Scarr, 1996). Specifically, this study will examine the different impact, if any, that a mother's stress has on children compared to a father's stress.

### **The Role of Stress and Coping**

Traditionally, stress is defined as a process that occurs when an organism perceives an external factor (stimulus or stressor) to be excessively demanding, which promotes a psychological, physiological, or biological response (McVicar, Ravalier, & Greenwood, 2013) such as enhancements in one's awareness of her surroundings, faster cognitive processing, quickened reflexes, or raised performance level (McVicar, Ravalier, & Greenwood, 2013). This can be conceptualized as a stimulus-cognition-response process. Stressors overwhelm an organism's homeostasis within the somatic, visceral, and circumventricular sensory pathways (Puglisi-Allegra & Andolina, 2014). The two main psychological stress response systems within the body are the sympathetic-adrenal-medullary (SAM) axis and the hypothalamic-pituitary-adrenal (HPA) axis (Aloia & Solomon, 2015). Specifically, the HPA axis produces adrenal steroids and stress hormones to defend the body against stressors. The HPA releases additional cortisol to adapt to the demands of the stressor when the body is exposed to stressful situations (Aloia & Solomon, 2015).

Both adaptive and restorative biological responses are evoked when an individual perceives a situation as stressful. This activation of the sympathetic nervous system prepares the individual for immediate physical action in which metabolic stimulation and mediation of immune changes facilitate sympathetic reactions and healing if injury occurs (Segerstrom & Miller, 2004). One's stability through change, commonly referred to as allostasis, is a biological factor that impacts an individual's response to stressful situations (McEwen, 2007). After the

stressful event passes, the behavioral and biological responses decline, and the biological framework returns to normal (McVicar, Ravalier, & Greenwood, 2014).

The impact of stress on one's physical and mental health is not a new concept in the field of psychology. It has been long understood that all organisms have the ability to respond to environmental stressors as a means to enhance their chance of survival (Seegerstrom & Miller, 2004). Traditionally, stress is defined as a process that occurs when an organism perceives an external factor to be overly challenging, which evokes a psychological, physiological, or biological response. Specifically, enhancements in one's awareness of her surroundings, faster cognitive processing, quickened reflexes, or raised performance level may occur (McVicar, Ravalier, & Greenwood, 2013). This can be conceptualized as a stimulus-cognition-response process. Both adaptive and restorative biological responses are stimulated when an individual perceives a situation as stressful. After the stressful event passes, the behavioral and biological responses decline, and the biological framework returns to normal (McVicar, Ravalier, & Greenwood, 2014).

Throughout one's life, she will be exposed to many different types of stressors. Some reactions to stress are healthier than others, and some individuals are more impacted by stressors than others. Thus, the individual, the environment, and the time when the stress occurs, are all variables that determine the impact stress has on the person (Monroe, 2008). There are many ways to label and conceptualize stressful situations; however, the present study will categorize stress into two distinct constructs: major life events and daily stressors (minor events). Major life events are characterized as events that drastically impact and cause a major life readjustment for an individual (Homes & Rahe, 1967; Pillow, Zautra, & Sandler, 1996). Major life events often cause changes in identity (e.g., married to divorced, employed to unemployed,

an individual with living parents to an individual with deceased parents). Daily stressors are minor disturbances that occur in an individual's life on a regular basis within the natural flow of everyday life (Mylin-Germeys, Krabbendam, & Delespaul, 2003). Having a history of psychological disorders places an individual at a greater risk for interpreting minor events as more stressful than having no history of mental health difficulties. Although research indicates that these events contribute to the increased risk of one's emotional reaction to daily life stressors, these events do not cause a stronger emotional response (Mylin-Germeys, Krabbendam, & Delespaul, 2003).

All organisms have the ability to respond to environmental stressors and threats in a capacity to enhance their survival (Segerstrom & Miller, 2004). Historically, one's response to stressful situations was categorized as fight-or-flight behavior. These physiological responses to stressors were commonly associated with immediate risk to one's life (e.g., a predator). Although modern humans rarely encounter many of the experiences that traditionally provoked fight-or-flight responses, the common physiological responses remain (Segerstrom & Miller, 2004). Additionally, the pattern of adaptive responses (stimulus-cognition-response process) used today is consistent with evolutionary history of stress response behavior, as these fight-or-flight cognitive and physiological responses were used to ensure one's safety (McEwen, 2007). An organism develops coping strategies, healthy or pathogenic, as a way to manage stressful experiences. Adaptive coping responses can either develop into dysfunctional strategies, or increase an individual's resiliency to similar stressful experiences which increases one's ability to remain stable through changes in her life (Puglisi-Allegra & Andolina, 2014). The general construct of coping can be separated into two categories: active and passive. Active coping refers to one's purposeful attempts to deal with problems through social support and comfort,

whereas passive coping is characterized by the absence of attempts to act upon a stressor (Barendregt, Van der Laan, Bongers, & Van Nieuwenhuizen, 2015). These means of coping may desensitize an individual to stressful situations in childhood, which influences her adult response to stress (Aloia & Solomon, 2015).

Stress can have short or long-term effects on various aspects of an individual's life. Mediating variables in coping can be conceptualized as additional facets of one's life that impact an individual's response (positively or negatively) to a situation. There are many mediating variables that influence one's ability to cope with stressors. The most common mediators are related to family factors, relationships, and work. The impact of stress in these areas is commonly negative. If an individual has been exposed to high levels of stressful situations during childhood, she may view verbal aggression and tolerance of other's verbal aggression as less adverse and more normative than individuals that have been exposed to low levels. This tolerance may be due to a recalibration of one's stress response system, meaning, as an individual is exposed to high levels of conflict, the normal physiological responses to cue stress are reduced (Eisenberg, 2000). This allows higher levels of verbal aggression to occur in adulthood before the stress response system is initiated. This tolerance of stress in a relationship can lead to higher levels of conflict before an individual identifies a situation as problematic. Thus, understanding the history and current state of one's physical environment and family dynamic is vital when conceptualizing stress.

Stress related to work can impact an individual's physical health and psychological well-being. Specifically, economic strain as a result of unemployment, exerts significant disruptions in an individual's emotional functioning (Aneshensel, 1992). In contrast, research has found that chronic job-stress is related to increased mortality (House, Strecher, Metzner, & Robbins, 1986),

indicating that being employed is not necessarily beneficial to an individual's psychological well-being. However, research has found that job-related stress can be buffered more effectively from coworkers' social support compared to social support from family members (LaRocco, House, & French, 1980). This suggests that some social supports can ameliorate stress better than others. Research has found that although exposure to stress does not differ between biological genders, there is a difference in perceived social supports, which influences the impact that stress has on an individual (Meyers, Schwartz, & Frost, 2008; Reevy & Maslach, 2001; Vázquez, Panadero, & Martín, 2015; Zhang, Yan, Zhao, & Yuan, 2014). Research has found that male students seek and receive more tangible support in interpersonal relationships, whereas female students seek emotional support (Reevy & Maslach, 2001; Zhang, Yan, Zhao, & Yuan, 2014).

Furthermore, Individuals living in 'fragile family systems' are considered to be at an elevated risk for a number of stressors within their lives (Reichman et al., 2001). For the purpose of this study, fragile families can be defined as family systems in which children are born to unmarried parents. In some cases, the parents of these children are living together similar to a marriage relationship, other parents live separately but have a close relationship, and some fathers/mother have little to no contact with the child or other parent (Reichman et al., 2001). Furthermore, previous research has indicated that men who father children outside of marriage are less likely to have a high school degree, work fewer hours than married fathers, and are younger (Garfinkel, McLanahan, & Hanson, 1998).

### **The Role of Externalizing Behaviors**

The most frequent externalizing behavior concerns in childhood include aggression, tantrums, noncompliance, hyperactivity, and impulsivity (Keenan & Wakschlag, 2000; Shaw,

Lacourse, & Nagin, 2005; Schindler et al., 2015). Researchers have found that 15% to 20% of preschool aged children experience social, emotional, or behavioral problems (Graziano et al., 2015). Behavior problems can cause disruptions in every aspect of daily life in the home and childcare settings alike. As elevated levels of externalizing behaviors continue to be displayed throughout early childhood, the risk for school related academic problems increases. Previous research suggests that these students are at an increased risk for difficulties in lower school engagement, retention in grades, and school dropout (Bub, McCartney, & Willett, 2007; Bulotsky-Shearer & Fantuzzo, 2011; Schindler et al., 2015). During the preschool years, elevated externalizing behavior problems not only interfere with the student's ability to engage and learn, but also interfere with teachers' ability to focus on teaching (Raver et al., 2008). Teachers have suggested that up to 25% of kindergarteners experience difficulties in following directions, sitting still, and working independently (McClelland, Morison, & Holmes, 2000).

From an ecological model perspective, there are many settings and individuals that can interact with and impact the trajectory of a child's behavior. Previous researchers have found that the interactions of environment, individuals, and SES in early childhood influences a child's behavior to either improve or become worse as they interact with others through middle childhood (Campbell, Shaw, & Gilliom, 2000; Moffit, 1993). As explained in Neal and Neal (2013), ecological-systems theory as proposed by Urie Bronfenbrenner (1977), focuses on the interrelations among a child's personal traits, their primary environment(s) and the reciprocal influences of each aspect of the environment(s) on the child's learning and behavior. Within this theoretical model, the child is considered an active member of a network of systems that are all interrelated with the child as the common link between the systems. Importantly, this theory suggests that a problem does not exist solely within the child or solely within his or her

environment; instead it is viewed as an interaction of all system components within the child's life (Neal & Neal, 2013).

The developmental sequence of social-emotional regulation can also be used to determine the trajectory of behavioral problems throughout the lifespan. The developmental sequence has been separated in research into three scientific constructs: infant temperament, parent-child face-to-face interaction, and emotional self-regulation in early childhood (Cole, Martin, & Dennis, 2004). The construct of infant temperament can be best understood as the innate reactive expression of emotions and self-regulation. Infant self-regulation is conceptualized as a baby's innate capacity to utilize behavioral strategies such as proximity seeking to a caregiver, sucking, or gaze aversion to modify the intensity and duration of an emotional response. Parent-child face-to-face interaction helps to expand the intrapersonal process of self-regulation, to an emotional regulation within social interactions and social situations. This interaction highlights the social nature of one's emotions systematically influencing another person's emotions and behaviors. These emotion exchanges between parent and baby have been found to influence the child's own ability to regulate his/her emotions. A child's emotional self-regulation refers to an individual's ability to regulate negative emotions. As children develop their cognitive, motor, and language skills, their range of abilities to regulate their own emotions also increases (Cole, Martin, & Dennis, 2004). As these abilities continue to develop over time, children's social-emotional regulation abilities will also continue to develop.

Parenting styles have been identified in research to correlate with child behavior. Specifically, previous research has found that there is a correlation between early 'harsh', inconsistent, and coercive parent-child relationships and heightened levels of externalizing problems (Schindler et al., 2015; Smith et al., 2014). Parent discipline styles have been found to

correlate with a child's level of externalizing behaviors (Schindler et al., 2015; Smith et al., 2014). Specifically, 'harsh', inconsistent, and coercive discipline styles can vary in presentation, but often result in similar increased displays of child externalizing behaviors (Gershoff, 2002; Lansford et al., 2011). This type of discipline can include physical discipline and verbal discipline. Physical discipline includes spanking, hitting, pushing, and pulling. Harsh verbal discipline by caregivers includes yelling, threatening, negative commands, criticism, and unreasonable expectations. Previous research suggests that harsh physical and negative verbal discipline is often the result of the parent's inability to regulate his or her own emotions, which then reinforces unregulated emotions in the child (O'Leary et al., 1999).

Regarding SES, previous studies have found that there are risk factors and heightened levels of externalizing behavior problems for individuals that were raised in a low SES family (Campbell et al., 2000). In a study conducted by Campbell et al. (2000), results found that there was a correlation between poverty, high-crime neighborhoods, and persistent discrimination on low SES individuals and externalizing behavior problems. In addition to children living in high-crime neighborhoods, previous research on one's exposure to community violence, and school violence throughout childhood demonstrated a correlation between exposure and increased levels of externalizing behaviors (McCabe, Hough, Yeh, Lucchini, & Hazen, 2005; Mrug & Windle, 2010; O'Keefe, 1997).

### **The Impact Parenting Stress Has on a Child's Externalizing Behaviors**

Parent stress occurring with and around a child during early childhood impacts the overall well-being of the child, the parent-child relationship, the parent-child interactions, and the parent's overall well-being (Crnic, Gaze, & Hoffman, 2005). Parent stress can be defined as a parent's aversive reaction to a situation based upon a mismatch between the parenting demands

and the available parenting resources (e.g., appraisal, coping mechanisms, stress reactions, and social supports) (Deater-Deckard, 1998). Researchers have found that this specific type of stress is linked with many maladaptive outcomes for children (Crnic, Gaze, & Hoffman, 2005; Deater-Deckard & Scarr, 1996; Yates, Obradovic, & Egeland, 2010). These negative outcomes can include attachment difficulties and behavior problems. Furthermore, previous research suggests that during a child's preschool years, parenting stress is correlated with concurrent child behavior problems (Anthony et al., 2005; Crnic, Gaze, & Hoffman, 2005; Deater-Deckard & Scarr, 1996).

Historically, the majority of research surrounding the influence of parent stress on child behavior difficulties was completed with only information provided from one parent, typically mothers. In traditional parenting roles, women were often viewed as caregivers to the children, whereas men were considered the working "breadwinners". Thus, the majority of parenting research has focused on mothers and their role in the child's life. However, there has recently been a growing literature base of research that examines parenting with both mothers and fathers or fathers alone. Financial stress has been identified in research as an aspect that influences parenting practices differently in mothers and fathers (Ponnet, Van Leeuwen, & Wouters, 2014). Additionally, studies have found differences in parental stress levels regarding similar events, which impacts the child's behavior differently (Ponnet, Van Leeuwen, & Wouters, 2014). Other studies have found that mothers and fathers are more similar than different in their levels of stress regarding similar events and there are not any distinct differences in child behavior based on parental gender and level of stress (Deater-Deckard and Scarr, 1996).

A component of stress that has been studied in parenting stress is self-efficacy. Self-efficacy in parenting can be described as a parent's belief in her own personal mastery during difficult parenting and life situations (Jackson, 2000). Results have indicated that mothers who

receive more social supports report less parenting stress, more self-efficacy, and fewer child behavior problems (Jackson, 2000). Therefore, parents with limited self-efficacy or limited coping resources, may experience increased parental stress, which may contribute to increased child behavior problems, which may contribute to additional parenting stress, and thus could continue to perpetuate this cycle through adolescence. Financial/job stress has been identified in research as an aspect that influences parenting stress (Ponnet, Van Leeuwen, & Wouters, 2014). Ponnet, Van Leeuwen, and Wouters (2014) conducted a study to determine the impact that parent stress as a result of financial has on adolescent behavior problems. Results indicated that financial stress experienced by fathers had a significant negative impact on fathers' positive parenting practices, as fathers were observed to be less warm and supportive. The negative impact on positive parenting practice was found to correlate with increased problem behaviors. Conversely, financial stress experienced by mothers did not impact on their positive parenting practices (Ponnet, Van Leeuwen, & Wouters, 2014). However, Deater-Deckard and Scarr (1996) found similar levels of parenting stress for both mothers & fathers in dual-earning families, and there were not any differences found between child behavior and parental gender stress.

Mitchell and Cabrera (2009) demonstrated similar results regarding the impact of father stress on problem behaviors. Mitchell and Cabrera (2009) conducted a study that examined the impact of low-income African American fathers' parenting stress on toddlers' problem behaviors. Results found that parenting stress predicted an increase father engagement in management, which predicted children's increased problem behavior. This may be due to fathers involvement in management activities, such as taking a child to the doctor and getting up with the child at night (Mitchell & Cabrera, 2009).

## **Purpose of Study**

As evidenced, the literature regarding the differences between mother stress and father stress on child behavior problems is limited and unclear. Thus, an expansion on understanding the specific role and impact mother stress and father stress have on child behavior is warranted. This information is valuable for the field of school psychology, as many school psychologists work with parents and families through caregiver behavior management training programs. As a main component of caregiver behavior management training programs focus on psychoeducation for those whose children have diagnoses, having a more concrete understanding of this topic is beneficial for training purposes. Therefore, if the impact of each parent's stress is specified, psychoeducation regarding parenting practice and the role stress plays in a family can be better explained, understood, and utilized by school psychologists when developing interventions to match the unique needs of each family's dynamic.

## **Research Questions and Hypothesis**

The following research questions are related to the differences between the impact mother stress and father stress have on externalizing behavior problems in early childhood.

### **Research Question 1**

Do mother stress and father stress levels differ on the impact of externalizing behavior problems in early childhood over time?

**Hypothesis 1.** It is hypothesized that mother stress impacts externalizing problem behaviors significantly more than father stress over time.

**Hypothesis 2.** It is hypothesized that fathers exhibiting high levels of stress will not correlate with high levels of externalizing behavior problems in children over time.

During early childhood, primary caregivers act as the main teachers for children to learn specific aspects of social-emotional regulation through parent-child interactions and modeling behavioral responses to distress (Eisenberg et al., 2001). Wittmer, Petersen, & Puckett (2013) indicate that maternal, or other important caregivers' sensitivity of responding to situations of discomfort during infancy helps to guide the development of emotional regulation in infants. Thus, highlighting the importance of parents remaining warm and nurturing especially during times of stress, as these social interactions between child and caregiver can impact a child's emotional regulation throughout their lifespan. From the theoretical perspective of social stress theory, when conceptualizing parent stress and child behavior problems, it is important to identify how one's relationship with their environment, previously learned coping techniques, and social supports will all influence how individuals respond to stressful situations.

While there is not any empirical evidence differentiating mother stress from father stress and the impact that has on child behavior problems, there is some research on the gender specific impact stress has on child behavior problems. This research demonstrated that mothers who experience high levels of maternal stress have been found to engage in less-sensitive childcare and are less positive towards their babies (Fish et al., 2004; Vaughn, Egeland, Sroufe, & Waters, 1979). Whereas, studies that focused solely on father stress did not demonstrate a difference only between child behavior problems and higher levels of parental stress (Mitchell & Cabrera, 2009). Meaning, results indicate a correlation between father parenting stress and higher levels of child behavior problems, however the fathers who reported lower levels of parenting stress also reported children with higher levels of problem behaviors (Mitchell & Cabrera, 2009). This suggests that fathers' level of stress may not directly influence child problem behaviors.

Therefore, it is hypothesized that higher levels of mother stress will directly impact child behavior more than father stress.

## **Research Question 2**

Does the type of stress a parent is experiencing differ on measures of externalizing problem behaviors in early childhood?

**Hypothesis 1.** It is hypothesized that mother's experiencing high levels of parent related stress will experience higher levels of externalizing behavior problems in their child more than fathers experiencing high levels of parenting stress.

**Hypothesis 2.** It is hypothesized that father's experiencing high levels of job related stress will experience higher levels of externalizing behavior problems in their child more than mothers experiencing job related stress.

Matud (2004) reported that although the number of life stressors that men and women experience did not vary, women reported the life stressors to be less controllable and less desirable than men. More specifically, the type of life stressors reported were also significantly different between genders. Regardless of sociodemographic differences among participants, women were found to report events experienced by other people in their environment (e.g., family related events, health related events), whereas men were found to report more events regarding work, finances, and relationships with others. Furthermore, women reported a significantly higher negative impact from daily life stressors compared to men (Matud, 2004).

For the purpose of this study, job stress will encompass stressful job related responsibilities and subsequent economic stressors related to being able to financially support the family's needs. Specifically, stress related to parental employment and subsequent financial situations have been identified in research as an aspect that influences stress in both mothers and

fathers (Ponnet, Van Leeuwen, & Wouters, 2014). Ponnet, Van Leeuwen, and Wouters (2014) conducted a study to determine the impact that parent stress as a result of work and finances has on adolescent behavior problems. Results indicated that financial stress experienced by fathers had a significant negative impact on fathers' positive parenting practices, as fathers were observed to be less warm and supportive. The negative impact on positive parenting practice was found to correlate with increased problem behaviors. Conversely, job and financial stress experienced by mothers did not impact on their positive parenting practices (Ponnet, Van Leeuwen, & Wouters, 2014). Thus, it is hypothesized that this area of stress for fathers will result in an increase in child behavior problems more than mothers.

## Chapter II: Literature Review

### Introduction

Chapter II reviews two primary areas of research: emotional stress and externalizing behaviors in early childhood. The literature review will begin with a definition and overview of stress as a process, including the mediating variables that impact stress, and the concept of coping as a means to respond to symptoms of stress. The completion of the section on stress will be a discussion regarding the theoretical perspectives guiding much of the work within the literature. Then, research regarding externalizing behaviors in early childhood will be discussed. This section will begin with a definition and an overview of externalizing behavior problems. Then, research regarding the factors that impact behavior, and intervention/prevention programs will be examined. The completion of the section on externalizing behaviors in early childhood will focus on two theoretical perspectives associated with much of the research within the relevant literature base. The final section within the literature review will focus on research that specifically examined the interaction of parenting stress on externalizing behavior problems in early childhood. The topics of parental gender and parental stress on child behavior as an understudied area of research will be discussed to identify the need for the current study.

### Stress

**Overview of stress.** Traditionally, stress is defined as a process that occurs when an organism perceives an external factor (stimulus or stressor) to be excessively demanding, which promotes a psychological, physiological, or biological response, such as enhancements in one's awareness of her surroundings, faster cognitive processing, quickened reflexes, or raised performance level (McVicar, Ravalier, & Greenwood, 2013). This can be conceptualized as a stimulus-cognition-response process. Stressors overwhelm an organism's homeostasis within the

somatic, visceral, and circumventricular sensory pathways (Puglisi-Allegra & Andolina, 2014). The two main psychological stress response systems within the body are the sympathetic-adrenal-medullary (SAM) axis and the hypothalamic-pituitary-adrenal (HPA) axis (Aloia & Solomon, 2015). Specifically, the HPA axis produces adrenal steroids and stress hormones to defend the body against stressors. The HPA releases additional cortisol to adapt to the demands of the stressor when the body is exposed to stressful situations (Aloia & Solomon, 2015).

Both adaptive and restorative biological responses are evoked when an individual perceives a situation as stressful. This activation of the sympathetic nervous system prepares the individual for immediate physical action in which metabolic stimulation and mediation of immune changes facilitate sympathetic reactions and healing if injury occurs (Segerstrom & Miller, 2004). One's stability through change, commonly referred to as allostasis, is a biological factor that impacts an individual's response to stressful situations (McEwen, 2007). After the stressful event passes, the behavioral and biological responses decline, and the biological framework returns to normal (McVicar, Ravalier, & Greenwood, 2014).

Throughout one's life, she will be exposed to many different types of stressors. Some individuals are more impacted by stressors than others, and some stress reactions are healthier than others. An individual's response to stress involves the larger network of the central nervous system including one's arousal, vigilance, cognitive processing, and memory, along with other immune activities (de Kloet et al., 2005; Gunnar & Quevedo, 2007). Previous research suggests that an individual's level of previous exposure to stress impacts that individual's reactions to daily life stressors (van Eck, Nicolson, & Berkhof, 1998). Specifically, the individual, the environment, and the time when the stress occurs, are all variables that determine the impact stress has on the person (Monroe, 2008).

To fully conceptualize this interactive construct, it is imperative to understand each variable and the impact it may have on one's stress (Monroe, 2008). The individual variable refers to one's psychobiological response to challenging external environmental variables. The psychobiological responses are often referred to as fight-or-flight responses to external stimuli. Coping styles depend largely on genetic predisposition, with responses maintained through their individual history of stress (Puglisi-Allegra & Andolina, 2015). These individual differences depend on the individual's adaptation to challenging environmental variables and coping resources that have been utilized over time and have been found to be effective. The environmental variables impacting one's response to stress are often conceptualized as external environmental conditions that would be common stressful features to the average individual, coupled with an individual's ability to utilize their coping resources (Monroe, 2008). The environmental variables may include, but are not limited to, housing situation, financial difficulty, parental responsibilities and job demands. There are many ways to label and conceptualize stressful situations; however, the present study will categorize stress into two distinct constructs: major life events and daily stressors (minor events).

Major life events are characterized as events that drastically impact and cause a major life readjustment for an individual (Holmes & Rahe, 1967; Pillow, Zautra, & Sandler, 1996). The emotional responses resulting from these experiences can last a long period of time and their impact varies from person to person. Major life events often cause changes in identity (e.g., married to divorced, employed to unemployed, an individual with living parents to an individual with deceased parents). This change in identity commonly causes a disruption in one's life, which then creates a *trickle down effect*, meaning that, after the event transpires, any minor stressors emanating from these stressful situations account for continued psychological distress

(Pillow, Zautra, & Sandler, 1996). These changes in roles can also wear away at an individual's self-concept, which can elicit additional stress (Pearlin, Menaghan, Lieberman, & Mullan, 1981).

Daily stressors are minor disturbances that occur in an individual's life on a regular basis within the natural flow of everyday life (Mylin-Germeys, Krabbendam, & Delespaul, 2003). Depending on one's typical stress response system, daily stressors can cause a spectrum of distress throughout her life. Specifically, individuals with more effective coping techniques will respond to minor stressors with more ease than individuals with poor coping techniques (Mylin-Germeys, Krabbendam, & Delespaul, 2003). A history of psychological disorders places an individual at a greater risk for interpreting minor events as more stressful than individuals without mental health difficulties. Mylin-Germeys, Krabbendam, and Delespaul (2003), conducted a study that examined the impact daily stress has on an individual. Results indicate that individuals who were previously exposed to major life stressors had stronger emotional reactivity in response to daily life stress compared to those who were not exposed to major life stressors. Although results indicate that these events contribute to the increased risk of one's emotional reaction to daily life stressors, it does not suggest that these events cause the stronger emotional response (Mylin-Germeys, Krabbendam, & Delespaul, 2003).

**History of stress and coping.** All organisms have the ability to respond to environmental stressors and threats in a capacity to enhance their survival (Seegerstrom & Miller, 2004). Historically, one's response to stressful situations was categorized as fight-or-flight behavior. These physiological responses to stressors were commonly associated with immediate risk to one's life (e.g., a predator). Although modern humans rarely encounter many of the experiences that traditionally provoked fight-or-flight responses, the common physiological responses remain (Seegerstrom & Miller, 2004). Additionally, the pattern of adaptive responses

(stimulus-cognition-response process) used today is consistent with evolutionary history of stress response behavior, as these fight-or-flight cognitive and physiological responses were used to ensure one's safety (McEwen, 2007).

The earliest examination of stress occurred in animal laboratories. Decades of research using animal models demonstrated that early experiences in one's life shape the neurobiological systems involved in stress regulation and reactivity (Gunnar & Quevedo, 2007; Sánchez, Ladd, & Plotsky, 2001). The stress response process supports an organism's development of adaptive coping responses to stressful experiences. Research suggests that stress and coping styles are a dynamic process of interactions between one's interaction with her environment and neurological functioning. Hori et al. (2010) demonstrated this interaction of neurobiological functioning and poor coping strategies through the use of cortisol suppressors in 121 healthy volunteers. Results indicated that the individuals who received the largest dose of cortisol suppressors showed the highest rate of pathology. Specifically, these individuals demonstrated interpersonal sensitivity, anxiety, and significantly more frequent use of the passive (avoidant) coping techniques (Hori et al., 2010).

Stressful experiences cannot be sustained for long, which is why the organism develops coping strategies, healthy or pathogenic. Adaptive coping responses can either increase an individual's resiliency to similar stressful experiences, or establish dysfunctional strategies that increases one's inability to remain stable through changes in their life (Puglisi-Allegra & Andolina, 2014). The general construct of coping can be separated into two categories: active and passive. Active coping refers to one's purposeful attempt to deal with problems through social support and comfort, whereas passive coping is based on the absence of attempts to act upon a stressor (Barendregt, Van der Laan, Bongers, & Van Nieuwenhuizen, 2015). The

perceived controllability of stressful situations in terms of the conditions and one's individual resources tend to elicit one of the two coping constructs. For instance, in perceived uncontrollable/unavoidable stressful situations, passive coping is often employed. For example, an individual that has been diagnosed with cancer may employ passive coping by denying that the problem exists, or using drugs and alcohol to forget the problem. Conversely, an individual diagnosed with cancer that employs active coping may develop a plan for dealing with the diagnosis or look for emotional support to deal with the problem. Research has demonstrated that individuals that utilize passive coping strategies tend to have lower self-esteem and lower perceived well-being (Ireland, Boustead, & Ireland, 2005).

One's individual coping style is conceptualized as the result of a combination of genetic predisposition and previously acquired coping skills through repeated experiences of stress across the lifespan (Puglisi-Allegra & Andolina, 2014). During infancy and early childhood, children engage in individual patterns of social relationships with caregivers, which are commonly referred to as attachment styles (Willinger et al., 2005). An infant begins to develop their attachment style after repeated experiences of distress are coupled with the caregiver's responsiveness during this time regarding consistency, reliability and warmth. Attachment styles have been found to be influential indicators of behavior throughout development and ability to cope with stress and challenges (Bowlby, 1980; Willinger et al., 2005). Previous research indicates that babies are likely to develop a more insecure attachment style when mothers identify as feeling more anxious or depressed (Fish et al., 2004; Vaughn, Egeland, Sroufe, & Waters, 1979).

Additional research concerning attachment styles and coping resources have examined mother-child relationships in rats. Specifically, this research has demonstrated that rats who had

a more nurturing relationship with their parents as pups, grew up to be less fearful and were better able to contain and terminate their stress (Caldji et al., 1998). Furthermore, a literature review conducted by Fish and colleagues (2004) regarding the maternal behavior of rats towards their pups suggests that maternal behavior towards offspring impacts overall neuroendocrine and behavioral responses to stress throughout life. Specifically, mothers who demonstrate fearful responses to stress tended to have offspring that responded to stressful situations with fear (Fish et al., 2004). Overall, research highlights that early experiences of high maternal care and attachment may be indicative of adaptive coping in adulthood. Conversely, additional research with rats demonstrates low maternal care in childhood increases the risk for pathogenic coping strategies in adulthood (Puglisi-Allegra & Andolina, 2014). As coping strategies are the main determinants of an individual's resiliency, positive early experiences in life greatly influence one's response trajectory to stressful situations throughout life.

**The impact of mediating variables in coping.** Stress can have short or long-term effects on various aspects of an individual's life. For the purpose of this paper, mediating variables in coping can be conceptualized as additional facets of one's life that impact an individual's response (positively or negatively) to a situation. There are many mediating variables that influence one's ability to cope with stressors. The most common mediators are related to family factors, relationships, and work. The impact of stress in these areas is commonly negative. In a study conducted by Aloia and Solomon (2015), college couples were evaluated to determine if exposure to familial verbal aggression in childhood impacted their biological response and communication during conflict with their romantic partner. Results from the dyadic interaction between the couples resulted in positive associations between one's conflict intensity and their cortisol reactivity. Additionally, one's exposure to familial verbal

aggression in childhood was negatively correlated with one's conflict intensity and cortisol reactivity, indicating that individuals exposed to high levels of verbal aggression in childhood developed a desensitization to this type of stressful situation in interpersonal relationships. This suggests that an individual's desensitization to stressful situations in childhood may influence her adult response to stress. In regards to conflict, this individual may not view typical levels of conflict as threatening or unhealthy until the aggression is extremely severe, which can cause discord in relationships with others (Aloia & Solomon, 2015).

Moreover, if an individual has been exposed to high levels of stressful situations during childhood, she may view verbal aggression and tolerance of other's verbal aggression as less adverse and more normative than individuals that have been exposed to low levels. This tolerance may be due to a recalibration of one's stress response system (Eisenberg, 2000), meaning, as an individual is exposed to high levels of conflict, the normal physiological responses to cue stress are reduced (Eisenberg, 2000). This allows higher levels of verbal aggression to occur in adulthood before the stress response system is initiated. This tolerance of stress in a relationship can lead to higher levels of conflict before an individual identifies a situation as problematic. Thus, understanding the history and current state of one's physical environment and family dynamic is vital when conceptualizing stress.

Stress related to work can impact an individual's physical health and psychological well-being. Specifically, economic strain as a result of unemployment, exerts significant disruptions in an individual's emotional functioning (Aneshensel, 1992). In contrast, research has found that chronic job-stress is related to increased mortality (House, Strecher, Metzner, & Robbins, 1986), indicating that being employed is not necessarily beneficial to an individual's psychological well-being. However, research has found that job-related stress can be buffered more effectively

from coworkers' social support compared to social support from family members (LaRocco, House, & French, 1980). This research suggests that some social supports can ameliorate stress better than others. Research has identified that the most common mediators of stress are related to family factors, relationships, and work. Thus, based on previous literature describing the ways in which the mediating factors can either positively or negatively contribute to one's stress, the current study will be focusing on these specific mediating variables to further explain the facets contributing to one's stress and the additional relationship the stress has on externalizing behavior problems in early childhood.

**Gender differences in stress.** Research has found that although exposure to stress does not differ between genders, there is a difference in perceived social supports, which influences the impact that stress has on an individual (Meyer, Schwartz, & Frost, 2008; Reevy & Maslach, 2001; Vázquez, Panadero, & Martín, 2015; Zhang, Yan, Zhao, & Yuan, 2014). Zhang, Yan, Zhao, and Yuan (2014) examined 1,674 middle school students through a series of self-report questionnaires to determine how they perceived stress, depressive symptoms, and their quality of social supports. Gender differences were found with male students reporting higher levels of vulnerability to interpersonal conflict due to a feeling of a lack of social support. This may be explained by the female students' report of receiving and giving more emotional support in their interpersonal relationships than the males reported (Zhang, Yan, Zhao, & Yuan, 2014). Research has found that males seek and receive more active and tangible support in interpersonal relationships, whereas female students seek emotional support (Matud, 2004; Reevy & Maslach, 2001; Zhang, Yan, Zhao, & Yuan, 2014). This distinction separates the genders regarding vulnerability and coping strategies with emotional problems. Overall, research suggests that the

social supports in one's life appear to mediate how one interprets and copes with stressful situations, depending on gender.

In a study conducted by Meyer, Schwartz, and Frost (2008), results for gender differences in regards to exposure to stressful events indicated that women were not exposed to an excess of perceived everyday discrimination, chronic strains, number of prejudice-related stressful events, as was hypothesized. However, men were exposed to far more prejudice stressful events than women. Moreover, women were found to have significantly larger social support networks than men, which may impact their ability to cope with stressful events. Although men and women are exposed to different types of stressors, their overall level of stress is similar (Meyer, Schwartz, & Frost, 2008). Additional research has found similar results in regards to no gender differences with exposure to life stressors (Matud, 2004). However, Matud (2004) found that although the number of events did not vary, women reported the life stressors to be less controllable and less desirable than men. Notably, the type of life stressors reported were also significantly different between genders. Women were found to report events experienced by other people in their environment (e.g., family events, health related events), whereas men were found to report events regarding work, finances, and relationships with others regardless of sociodemographic differences among participants. Furthermore, women reported that a significant difference in the occurrence and impact daily life stressors compared to men. Overall, the research highlights that there are significant differences between each gender's perception of stressful events and coping styles relating to stress.

### **Theory.**

*Ecological-systems theory.* A theoretical perspective related to understanding externalizing behaviors takes a broad focus. Ecological-systems theory as explained in Neal and

Neal (2013), is a framework proposed by Urie Bronfenbrenner (1977), which focuses on the interrelations among a child's personal traits, their primary environment(s) and the reciprocal influences of each aspect of the environment(s) on the child's learning and behavior (Neal & Neal, 2013). Within this theoretical model, the child is considered as an active member of a network of systems that are all interrelated with the child as the common link between the systems. This overlap identifies how an experience or situation in one system may influence and impact the child's behavior in another system. Importantly, this theory suggests that a problem does not exist solely within the child or solely within his or her environment, instead it is viewed as an interaction of all system components within the child's life and is examined to see how they interact to influence an individual's development across the lifespan (Neal & Neal, 2013).

Bronfenbrenner (1977) proposed the environmental structure composed of the following systems: the microsystem, the mesosystem, the exosystem, the macrosystem, and the chronosystem. The microsystem is composed of the systems in which the child has the most direct contact with, commonly family and school systems. The mesosystem is comprised of the relationships between the microsystems in a person's life. The exosystem is comprised of the larger social system of an individual's life that they do not have any direct contact with. The macrosystem is comprised of an individual's beliefs, values, customs, and laws in which the individual live. The final system, the chronosystem, considers the dimension of time in which the individual is living. This theory focuses on the importance of the environmental influences on an individual person and the direct interactions one has within the systems (Neal & Neal, 2013).

***Social stress theory.*** Social stress theory interconnects three concepts to formulate a comprehensive understanding of stress as a process: sources of stress, mediators of stress, and

the manifestation of stress (Pearlin, Menaghan, Lieberman, & Mullan, 1981). Sources of stress refer to the occurrences of daily life stressors and major life events. Mediators of stress include an individual's social supports and coping skills, which can mediate the impact of difficult situations. Social supports refer to one's external resources (individuals, groups, or organizations), whereas coping skills refers to one's internal resources used for regulating problematic situations. The manifestation of stress refers to one's meaning and measurement of her stress (Pearlin et al., 1981). Each of the three concepts can separately intervene at different points throughout the process and control the impact stress has on the individual. Self-concept is perceived in social stress theory as an intervening mechanism that can either act as a stress-buffer or lead to pathology (Mossakowski, 2015). Self-esteem is an aspect of self-concept that is comprised of an individual's thoughts about her own capabilities and worth. Social stress theory conceptualizes self-esteem as influenced by socioeconomic status (SES). Thus, individuals from a low SES may perceive themselves and their life unfavorably compared to those from a higher SES, which may impact their self-esteem and overall mental health (Mossakowski, 2015).

Additionally, this theory predicts that individuals from a low SES will be more likely to be exposed to stressors related to economic difficulties. This exposure may contribute to heightened vulnerability to pathology (Pearlin et al., 1981). Based on this theory, the following stress risks lead to greater stress and poorer health outcomes (mental illness and diseases): individuals from a low SES family, low social status, lack of support systems, and lack of coping resources (Meyer, Schwartz, & Frost, 2008). Overall, this theory aims to identify if high exposure to social stressors/limited resources attributes to higher levels of disorder within a community (Meyer, Schwartz, & Frost, 2008). Meyer, Schwartz, and Frost (2008) examined social stress theory to determine if disadvantaged social statuses were related to an increase in

stress and a lack of coping resources, thus leading to poorer health outcomes. Results confirmed social stress theory in regard to low SES individuals experiencing more stressors and demonstrating less coping skills compared individuals of advantaged groups (Meyer, Schwartz, & Frost, 2008). Thus, it is important to identify how one's relationship with their environment, previously learned coping techniques, and social supports influence an individual's response to stressful situations, as well as how that response impacts a child's social-emotional development.

### **Externalizing Behaviors in Early Childhood**

**Development of social-emotional regulation.** The development of one's social-emotional regulation during early childhood provides the foundation for mental health, learning, and social interactions throughout the lifespan (Wittmer, Petersen, & Puckett, 2012). Thus, understanding this specific aspect of early childhood development is vital in conceptualizing and understanding behavior throughout childhood and beyond. During early childhood, primary caregivers act as the main teachers for children to learn specific aspects of social-emotional regulation through parent-child interactions and modeling behavioral responses to distress (Eisenberg et al., 2001). The developmental sequence of social-emotional regulation has been separated in research into three scientific constructs: infant temperament, parent-child face-to-face interaction, and emotional self-regulation in early childhood (Cole, Martin, & Dennis, 2004). The construct of infant temperament can be separated into the following components: emotionality, activity, self-regulation, and sociability (Cole, Martin, & Dennis, 2004; Puckett, Black, Wittmer, & Peterson, 2005). Infant self-regulation is conceptualized as a baby's capacity to express and have control over emotions through the utilization of behavioral strategies such as proximity seeking to a caregiver, sucking, or gaze aversion to modify the intensity and duration of an emotional response (Wittmer, Petersen, & Puckett, 2013). Emotionality refers to the

magnitude of the response for events that are upsetting to the child (Puckett, Black, Wittmer, & Peterson, 2005). Infant activity refers to the specific type of behavior the infant is engaging in and the speed in which activities are completed (Puckett, Black, Wittmer, & Peterson, 2005). Infant sociability refers to the level of interaction with others (withdrawal and approach) and social proximity from others. As previous research demonstrates that early experiences in a child's life truly shape the underlying biological system of emotional expression, it is vital to first understand the earliest development of temperament in infants and responsiveness of caregivers (Wittmer, Petersen, & Puckett, 2013).

Previous research has indicated that parents who identify their child's temperament as difficult have found it difficult to respond to their behaviors in a more nurturing and supportive manner (Puckett, Black, Wittmer, & Peterson, 2005). Parents have also identified that an infant with a more difficult temperament makes them feel more inadequate when completing their parenting duties, helpless, and confused (Chess & Thomas, 1996; Puckett, Black, Wittmer, & Peterson, 2005). Conversely, previous research has found that secure attachment relationship between child and caregiver throughout infancy help to combat the potentially harmful effects of stress (Wittmer, Petersen, & Puckett, 2013). Infants that demonstrate secure attachment have been found to be more socially competent, as well as have greater abilities to combat stressful or traumatic events throughout the lifespan compared to those with a more difficult temperament (Cassidy & Shaver, 2008; McElwain, Cox, Burchinal, & Macfie, 2003). Maternal, or other important caregivers' sensitivity of responding to situations of discomfort during infancy helps to guide the development of emotional regulation as infants need help in learning how to regulate their emotions (Wittmer, Petersen, & Puckett, 2013). Thus highlighting the importance of parents feeling confident in their parenting abilities and remaining warm and nurturing especially

during the initial stages of life, as these initial social interactions between child and caregiver can have a longstanding detrimental effect on a child's emotional regulation throughout their lifespan.

Parent-child face-to-face interaction helps to expand the intrapersonal process of self-regulation to an emotional regulation within social interactions and social situations (Cole, Martin, & Dennis, 2004). This interaction highlights the social nature of one's emotions systematically influencing another person's emotions and behaviors. These emotion exchanges between parent and baby have been found to influence the child's own ability to regulate his/her emotions. Specifically, certain parenting temperament/style (e.g., warmth, passive) has been found to either positively or negatively correlate with children's social-emotional regulation (Eisenberg et al., 2001). As children develop their cognitive, motor, and language skills, their range of abilities to regulate their own emotions also increases (Cole, Martin, & Dennis, 2004). As these abilities continue to develop over time, children's social-emotional regulation abilities will also continue to develop.

**Overview of externalizing behaviors in early childhood.** Externalizing behavior concerns in early childhood include a combination of both aggressive and disruptive behaviors. These behaviors include tantrums, noncompliance, aggression, hyperactivity, and impulsivity (Keenan & Wakschlag, 2000; Schindler et al., 2015; Shaw, Lacourse, & Nagin, 2005). Research has found that 15% to 20% of preschool aged children experience social, emotional, or behavioral problems (Graziano et al., 2015). Externalizing behaviors commonly emerge in infancy, behaviorally peak during the toddler to preschool years (2-4), and then generally decline after this time period (Schindler et al., 2015). Behavior problems can cause disruptions in every aspect of daily life in the home and childcare settings alike. Previous research suggests that

children commonly begin to display these externalizing behaviors between ages two and four (Keenan & Wakschlag, 2000; Shaw, Lacourse, & Nagin, 2005). Externalizing behaviors during this time period, based on a developmental perspective, may be attributed to the child's frustration when limits are placed on him/her when independence is attempted (Keenan & Wakschlag, 2000). Often times, children during this age period are heard saying phrases such as, "I want to do it by myself" and, "No, I can do it." Thus, as children begin to display independence and limits are placed on him/her, externalizing behaviors may begin to emerge. Although some externalizing behaviors are developmentally appropriate, once the behaviors begin to significantly interfere with a child's social functioning and daily living, the behaviors begin to be viewed as clinical symptoms (Keenan & Wakschlag, 2000). Research indicates that 50-70% of children who exhibit disruptive behaviors during early childhood will continue to exhibit these behaviors into school-age years (Luby, 2016).

As children continue to demonstrate an elevated level of externalizing behaviors throughout early childhood, the risk for school related academic problems increases. Previous research suggests these students are at an increased risk for difficulties in some areas of education. These academic areas include lower school engagement, retention, and dropout (Bub, McCartney, & Willett, 2007; Bulotsky-Shearer & Fantuzzo, 2011; Schindler et al., 2015). During the preschool years, elevated externalizing behavior problems not only interfere with the student's ability to engage and learn, but also interferes with teachers' ability to focus on teaching (Raver et al., 2008). During the elementary school years, teachers have suggested that that up to 25% of kindergarteners experience difficulties in following directions, sitting still, and working independently (McClelland, Morrison, & Holmes, 2000). These behaviors during the elementary school years may not only make it difficult for the student to focus and engage in the

academic rigor of the class, but it also places as strain on the teachers' time and attention (Houts, Caspi, Pianta, Arseneault, & Moffitt, 2010).

**Factors that impact behavior.** There is a lot of variability within research regarding the different factors that impact a child's behavior the most. From an ecological model perspective, there are many settings and individuals that can interact with and impact the trajectory of a child's behavior. These factors include environment (e.g., home, school, neighborhood), individuals (e.g., parents, family, friends, teachers), and socio-economic status (SES) (Schindler et al., 2015). Previous research has found that the interactions of environment, individuals, and SES in early childhood influences a child's behavior to either improve or worsen as they interact with others through middle childhood (Campbell, Shaw, & Gilliom, 2000; Moffit, 1993).

Although environment and SES impact a child's behavior, it can be argued that the child's interactions and relationships with caregivers throughout early childhood are the most impactful variable on behavior. Various types of parent-child interactions can be the result of the child's attachment style to the parent, parenting style, and parenting stress. Parent discipline styles have been found to correlate with a child's level of externalizing behaviors (Schindler et al., 2015; Smith et al., 2014). Previous research has found that there is a correlation between early 'harsh', inconsistent, and coercive parent-child relationships, which often leads to heightened levels of externalizing problems (Gershoff, 2002; Lansford et al., 2011; Schindler et al., 2015; Smith et al., 2014). This type of discipline can include physical discipline and verbal discipline. Physical discipline includes spanking, hitting, pushing, and pulling. Harsh verbal discipline by caregivers includes yelling, threatening, negative commands, criticism, and unreasonable expectations. Previous research suggests that harsh physical and negative verbal discipline is often the result of the parent's inability to regulate his or her own emotions, which

then reinforces unregulated emotions in the child (O’Leary et al., 1999).

Regarding SES, previous studies have found that there are risk factors and heightened levels of externalizing behavior problems for individuals that were raised in a low SES family (Campbell et al., 2000). In a study conducted by Campbell et al. (2000), results found that there was a correlation between poverty, high-crime neighborhoods, and persistent discrimination on low SES individuals and externalizing behavior problems. In addition to children living in high-crime neighborhoods, previous research on one’s exposure to community violence, and school violence throughout childhood demonstrated a correlation between exposure and increased levels of externalizing behaviors (McCabe, Hough, Yeh, Lucchini, & Hazen, 2005; Mrug & Windle, 2010; O’Keefe, 1997).

### **Impact of Parent Stress on Child Behavior**

**Impact of parent stress on behaviors in early childhood.** Parent stress can be defined as a parent’s aversive reaction to a situation based upon a mismatch between the parenting demands and the available parenting resources (e.g., appraisal, coping mechanisms, stress reactions, and social supports) (Deater-Deckard, 1998). Abidin (1990) developed a model of parenting stress which hypothesized that high levels of parental distress, perceived child difficulty, and parent-child dysfunctional interactions leads to an increase in negative parenting practices. Research has found that this specific type of stress to be linked with many maladaptive outcomes for children (Crnic, Gaze, & Hoffman, 2005; Deater-Deckard & Scarr, 1996; Yates, Obradovic, & Egeland, 2010). These negative outcomes can include attachment difficulties and behavior problems. Additionally, mothers who experience high levels of maternal stress have been found to engage in less-sensitive childcare and are less positive towards their babies (Fish et al., 2004; Vaughn, Egeland, Sroufe, & Waters, 1979).

Parent stress occurring with and around a child during early childhood impacts the overall well-being of the child, the parent-child relationship, the parent-child interactions, and the parent's overall well-being (Crnic, Gaze, & Hoffman, 2005). Furthermore, research has found a correlation between high levels of mother's stress and her child's increased sensitivity to stress (Essex, Klein, Cho, & Kalin, 2002). Previous research suggests that during a child's preschool years, parenting stress is correlated with concurrent child behavior problems (Anthony et al., 2005; Crnic, Gaze, & Hoffman, 2005; Deater-Deckard & Scarr, 1996). Crnic and colleagues (2005) conducted a longitudinal study that examined 141 families with typically developing children, with the majority of participants living in two-parent households. Data was collected five times across two years when the child was between the ages of three and five. Results indicated that daily life parent stressors remained stable or increased over time. The daily life stressors were reported to be a significant source of stress for the parents, and thus negatively impacted his or her parenting behavior, as well as the parent-child interactions. Moreover, the level of child behavior problems, as assessed by parent ratings on the child behavior checklist and direct observations, was found to concurrently match parental stress. Meaning, the higher the level of parental stress, the higher the rating of child behavior (Crnic, Gaze, & Hoffman, 2005). This study highlights the strong association between high levels of stress for parents and increased level of problem behaviors in children.

Similarly, Deater-Deckard and Scarr (1996) examined 589 middle class married couples living in dual-earner families with a child between the ages of one and five to determine the impact parent stress had on child behavior. To examine parenting perception of parenting stress, parents completed the Parenting Stress Index-Short Form, as well as other measures of child-rearing behaviors and attitudes, social support, and child behavior. The Parenting Stress Index-

Short Form examines the subscales of Parent Distress, Parent-Child Dysfunctional Interaction, and Child Difficulty. Parent stress was examined, as well as the child's external and internal behaviors. Results indicate that the comparison of reports of parenting stress between mothers and fathers revealed few differences and many similarities. Across the subscales of Parent Distress, Parent-Child Dysfunctional Interaction, and Child Difficulty, the means did not differ based on gender more than one fifth of a standard deviation. Notably, results indicate that mothers and fathers alike reported lower parenting stress when the father shared the child care or did most of the child care labor in the home. One of the largest correlates of parenting stress that was identified in both mothers and fathers was emotional support from others, but the most impactful was emotional support from their spouse. Specifically, there was a strong correlation between marital satisfaction and parental stress. Results indicate that parents who were identified as reporting more stress were also reporting using more authoritarian and power assertive discipline strategies, which was also correlated to more child misbehavior. Findings indicate that parents who are more stressed and who exhibit poor parenting practices, were correlated with increased levels of internal and external child behavioral problems. Overall, this study highlights the impact parenting stress has on a parent's disciplinary style, which in turn then impacts the parent-child relationship, and was found to then increase the behavioral difficulties the child was displaying (Deater-Deckard & Scarr, 1996). Although these variables are separate, they all impact and influence one another.

A component of stress that has been studied in parenting stress is self-efficacy. Self-efficacy in parenting can be described as a parent's belief in their own personal mastery during difficult parenting and life situations (Jackson, 2000). Jackson (2000) studied 188 single employed and unemployed African American mothers stress and preschool child behavior.

Mothers completed questionnaires regarding their perceived self-efficacy, perceived social support measures, parenting stress, and child behavior problems. Results found that higher levels of problem behaviors were significantly related to concurrent parent stress. Lower perceived self-efficacy, less social supports, and job status (unemployment) were related to reportedly higher levels of parenting stress. Conversely, mothers who received more social supports reported less parenting stress, more self-efficacy, and reported fewer child behavior problems (Jackson, 2000). Therefore, results suggest that if parents have limited self-efficacy or limited coping resources, the parental stress may lead to increased child behavior problems, which may contribute to more parenting stress, and thus could continue to perpetuate this cycle through adolescence.

Specifically, parenting stress has been studied and identified as a factor that directly contributes to a child's externalizing behavior problems (Anthony et al., 2005; Mackler et al., 2015). Anthony and colleagues (2005) studied a 307 children and families attending Head Start preschools and private daycare centers to examine if parental stress at home impacted child behavior in a preschool setting. The Parenting Behavior Checklist was administered to assess parental behaviors (discipline and nurturing) and expectations, the Parenting Stress Index-Short Form was administered to assess stress levels in parent-child relationships, and preschool classroom teachers completed a measure to assess child social competence, Internalizing Problems, Externalizing Problems and General Adaptation. Results from the study indicated that higher levels of parenting stress at home were correlated with higher levels of externalizing and internalizing behavior problems in childcare settings in students' ages two to six. Results are commensurate with previous research regarding parenting style and parenting stresses impact on behavioral problems in children. Notably, the study was unable to conclude the extent to which

children's low behavior problems and social competence impacted parenting stress. Thus making it difficult to tease apart if the behavior caused the stress, or the stress and parenting style caused the behavior, or a mixture of both?

Mackler et al. (2015) examined the transactional impact that parenting stress, negative perceptions of parental reactions, and externalizing behaviors with 404 children over the ages of four, five, seven, and ten. Parental stress was examined with the Parenting Stress Inventory-Short Form, mothers' perceived negative parental reactions were assessed with the Coping with Children's Negative Emotions Scale, and child behavior problems were assessed with the Behavioral Assessment Scale for Children-Second Edition. The longitudinal results found direct reciprocal effects between parenting stress and externalizing behaviors across time. The longitudinal results suggest that the reciprocal relationship between parenting stress and child externalizing behavior problems remains stable over time. The transactional model utilized to analyze the results also allows for the examination of reciprocal relationships between both variables as well as indirect effects of parental reactions (Mackler et al., 2015). This study continues to support previous research findings suggesting a direct relationship between parenting stress and externalizing behavior problems in children.

**Impact of gender differences in parent stress on child behavior.** Historically, the majority of research surrounding the influence of parent stress on child behavior difficulties was completed with only information provided from one parent, typically mothers. The focus of mothers in research has been noted as mainly based on the assumption of the traditional parenting roles for women with children compared to men. However, there has recently been more research completed that examines parenting with both mothers and fathers or fathers alone.

Financial stress has been identified in research as an aspect that influences parenting stress (Ponnet, Van Leeuwen, & Wouters, 2014). Ponnet, Van Leeuwen, and Wouters (2014) conducted a study to determine the impact that parent stress as a result of financial has on adolescent behavior problems. Results indicated that financial stress experienced by fathers had a significant negative impact on fathers' positive parenting practices, as fathers were observed to be less warm and supportive. The negative impact on positive parenting practice was found to correlate with increased problem behaviors. Conversely, financial stress experienced by mothers did not impact on their positive parenting practices (Ponnet, Van Leeuwen, & Wouters, 2014). However, Deater-Deckard and Scarr (1996) found similar levels of parenting stress for both mothers and fathers in dual-earning families, and that there were not any differences found between child behavior and parental gender stress.

Mitchell and Cabrera (2009) demonstrated similar results regarding the impact of father stress on problem behaviors. The study examined Abidin's (1992) parenting stress model to examine the mediating effect father engagement has on the association of low-income African American fathers' parenting stress on toddlers' problem behaviors. Participants included 53 fathers (biological and father figures) with toddlers enrolled in Early Head Start. Variables were examined through an initial 30-minute videotaped interactions of fathers and toddlers, a 60-minute in-person interview, standardized questionnaires. Parenting stress was assessed through the Parenting Stress Index-Short Form, father engagement was examined with the Activities with Child Scale, father-child interactions were examined with The Caregiver-Child Affect, Responsiveness, and Engagement Scale, and children's social competence and behavior problems were examined by the Brief Infant Toddler Social Emotional Assessment scale. Follow-up visits occurred six months after the initial data collection period utilizing the same

examination tools. Results found a moderate amount of parenting stress reported, but there was no direct effect of stress on children's social development. Parenting stress was also found to predict an increase father engagement in management (e.g., taking a child to the doctor and getting up with the child at night), engagement in management activities did not directly predict children's problem behavior. Notably, although results suggest a correlation between parenting stress and higher levels of child behavior problems, the fathers who reported higher levels of parenting stress did not have children with higher levels of problem behaviors compared to those who reported lower levels of parenting stress when additional ecological and family structure characteristics were considered (Mitchell & Cabrera, 2009). As there are minimal studies examining father stress on behavior problems in early childhood, this study opens the door for further exploration on the impact father engagement and stress many have on a developing child.

As evidenced, the literature regarding the differences between mother stress and father stress on child behavior problems is limited and unclear. While the majority of research focuses solely on mothers and their individual parental stress levels, some studies have found gender differences in parental stress levels regarding similar events, which impacts the child's behavior differently (Ponnet, Van Leeuwen, & Wouters, 2014). Whereas other studies have found that mothers and fathers are more similar than different in their levels of stress regarding similar events and there are not any distinct differences in child behavior (Deater-Deckard and Scarr, 1996). As the literature has demonstrated the lasting impact interactions and infant attachment has on one's social-emotional development, an expansion on understanding the specific impact mother stress and father stress have on child behavior is warranted.

### **Chapter III: Methods**

The purpose of this study was to examine how the similarities and differences between mothers' and fathers' stress levels impact their children's behavior problems in early childhood. An existing large-scale data source was utilized for this study and explained first, followed by a description of the data collection procedure. Second, participants recruited for the study will be described. Next, an explanation of the measures for each construct will be discussed. Lastly, an explanation of the data analysis conducted to best answer the research questions is provided.

#### **Data Source**

The following study utilized and analyzed data from the Fragile Families and Child Wellbeing Study (FFCWS). The FFCWS was a longitudinal dataset sponsored by Princeton University's Center for Research on Child Wellbeing and Center for Health and Wellbeing, the Columbia Population Research Center, and the National Center for Children and Families at Columbia University. The FFCWS was comprised of nearly 5,000 children born in large United States cities between 1998 and 2000. Three-quarters of the participants were born to unmarried parents. Data were collected during five waves: when the children were born, ages one, three, five, and nine respectively.

The dataset consisted of observational and parent reported data regarding various aspects of parent stress, child behavior, and parental relationship status. Data were collected through parent interviews, direct observations, and in-home assessments. The parent interviews consisted of collecting information on the children's cognitive and emotional development, health, and home environment. Researchers collected all information from both mothers and fathers separately.

## Data Collection

Data were collected for the FFCWS using face-to-face, medical record extraction, and written questionnaire methods. During the three-year, five-year, and nine-year phases, in-home assessments of the children utilizing observations were conducted to collect information on the children's cognitive and emotional development, health, and home environment. Mother and father participants completed all written questionnaires separately. During the initial baseline phase (birth), medical records in the hospital where the mothers gave birth were examined and pertinent demographic information was collected. Throughout all phases: birth, age one, age three, age five, and age nine, mother and father surveys containing identical questions were completed. Specifically, during the baseline (birth) phase, the written questionnaires completed by both mothers and fathers included sections on prenatal care, mother-father relationship, expectations about fathers' rights and responsibilities, attitudes toward marriage, parents' health, social support and extended kin, knowledge about local policies and community resources, and education, employment, and income.

All subsequent written questionnaires completed by mothers and fathers when the child was respectively ages one, three, five, and nine, included information about the family's access to and current use of healthcare and childcare services, experiences (if any) with local welfare and child support agencies, parental conflict, domestic violence, and the child's health and wellbeing (Reichman, Teitler, Garfinkel, & McLanahan, 2001). During the age three phase, the child's childcare provider completed a survey regarding the child's behavior and social development. During the ages five and nine phases, the child's teacher completed a survey. Additionally, the children completed self-report questionnaires during the age nine phase.

## **Participants**

The sample consisted of children and their parents across 75 hospitals in 20 cities within the United States (Reichman, Teitler, Garfinkel, & McLanahan, 2001). The sample consisted of both “large” and “small” cities. Notably, data collected from 16 of the 20 cities are nationally representative for cities with populations over 200,000. All participating cities were categorized based on welfare generosity, the strength of the child support system, and the strength of the local labor market. Participants were randomly selected for the sample when the children were born, and follow-up data were collected on each family when the child was approximately ages one, three, five, and nine. Participants were randomly selected from each hospital until a predetermined quota based on the previous year’s percentage of non-marital births for that particular city was reached. Some participants that were randomly selected were excluded from the sample if the parents planned to place the child up for adoption, if the father of the child was not living at the time of the birth, mothers or babies who were too ill to complete the initial interview, and those whose baby passed away before the initial interview could take place. Included in this sample were 4700 births, with 3600 non-marital, 1100 marital parents (Reichman, Teitler, Garfinkel, & McLanahan, 2001).

## **Measures**

Data were collected for the FFWBS at the child’s birth, age one, age three, age five, and age nine. During each phase, mothers and fathers completed a large survey that consisted of several different categories, such as aspects of their personal stress, their stress related to parenting, their child’s health, and their child’s behavior. The present study included existing data from several direct and indirect measures across three data collection phases. For the purpose of the current study, select items from the survey were extracted to create variables

(Demographics, Parenting stress, Job stress, and Externalizing child behavior problems) within the specified constructs.

### **Demographics**

Demographic information about the family and the child were obtained from each participant during the initial self-report written questionnaire and collected through approved medical record extraction. Specific items regarding participants' race, parent relationship status, and gender were utilized to create this variable.

### **Parenting stress**

The variable of parenting stress was measured by each of the parents' responses to specific questions during the ages three and five phases. Based on previous research conducted by Cooper et al. (2009), select items were extracted to form the parenting stress variable. The four items were selected from both Abidin's Parent Stress Inventory (Abidin, 1995) and the National Evaluation of Welfare-to-Work Strategies study (Hofferth, Davis-Kean, Davis, & Finkelstein, 1997), for the use of the FFCWBS. Each parent responded to statements on the survey using a four-point Likert scale (1=strongly disagree, 2=somewhat disagree, 3=somewhat agree, 4=strongly agree): being a parent is harder than I thought it would be; I feel trapped by my responsibilities as a parent; I find that taking care of my child(ren) is much more work than pleasure; I often feel tired, worn out, or exhausted from raising a family.

### **Job stress**

The variable of job stress was measured by each of the parents' responses to specific questions during the ages three and five phases. Based on previous research conducted by Nomaguchi and Johnson (2013), select items were extracted to form the job stress variable. Each parent completed a survey and responded to the following statements using a four-point

Likert scale (1 = always, 2 = often, 3 = sometimes, 4 = never): My shift and work schedule cause extra stress for me and my child; Where I work, it is difficult to deal with child care problems during working hours; In my work schedule I have enough flexibility to handle family needs.

### **Externalizing child behavior problems**

The variable of externalizing child behavior problems was measured by each of the parents' responses to specific questions during the ages three and five phases. Based on previous research conducted by Goldberg and Carlson (2014), select items were extracted to form the externalizing child behavior problems variable. Information regarding externalizing behavior problems were completed during the years three and five in-home portion of the FFCWBS. Initially, it was proposed that each parent would identify behaviors separately, however that was not possible for the year three phase, therefore, the data on child behavior from the primary caregiver during the in-home portion of the study was utilized for this variable. During the year three in-home portion of the study 95.1% of the participants the primary caregiver was the mother, .5% of the participants the primary caregiver was the father, and .4% were other caregivers (e.g., grandparent or other relative). During the year five in-home portion of the study 96.4% of the participants the primary caregiver was the mother, .9% of the participants the primary caregiver was the father .8% were grandmothers, and .3% were other relatives. Given that it was during the in-home portion of the FFCWBS, only one parent completed a survey and responded to statements using a three-point Likert scale (0 = not true, 1 = sometimes true, 2 = often true). Fourteen items will be utilized to make up this construct at the age three and five phase.

## **Research Questions and Hypotheses**

The following research questions are related to the differences between the impact that mother stress and father stress has on externalizing behavior problems in early childhood.

### **Research Question 1**

Do mother stress and father stress levels differ on the impact of externalizing behavior problems in early childhood over time?

**Hypothesis 1.** Mother stress impacts externalizing problem behaviors significantly more than father stress over time.

**Hypothesis 2.** Fathers exhibiting high levels of stress will not correlate with high levels of externalizing behavior problems in children over time.

### **Research Question 2**

Does the type of stress a parent is experiencing differ on measures of externalizing problem behaviors in early childhood?

**Hypothesis 1.** Mother's experiencing high levels of parent related stress will experience higher levels of externalizing behavior problems in their child more than fathers experiencing high levels of parenting stress.

**Hypothesis 2.** Father's experiencing high levels of job related stress will experience higher levels of externalizing behavior problems in their child more than mothers experiencing job related stress.

## **Data Analysis**

To examine the relationship between parent stress and externalizing behavior problems in children over time, analyses using cross-lagged structural equation modeling (SEM) techniques were utilized. Utilizing SEM techniques was an appropriate statistical analysis, as this technique

can include both observed and latent variables within the same analysis (Kline, 2011). Moreover, this specific SEM technique allows for the examination of possible bidirectional effects over time between two variables. The possible bidirectional effects over time is examined within this technique by estimating the effect of one variable at one data collection phase (time one) on a different variable at a later data collection phase (time two), while controlling for the effect of the second variable at time one (Goldberg & Carlson, 2014). This technique also allows for the examination of correlations between repeated measures of each of the variables. As highlighted in Figures 3 and 4, the model examined the bidirectional relationships between and within repeated measures across time.

The cross-lagged SEM model is better than other forms of modeling growth over time, such as a nested repeated measures model using a multilevel SEM, as the cross-lagged SEM model allows for much flexibility in examining and analyzing change over time (Beaujean, 2014). Furthermore, a cross-lagged SEM is the best method for answering the proposed hypotheses. One may argue that a nested repeated measure model using a multilevel SEM model would also answer the proposed questions. However, the cross-lagged SEM is the better method, as this type of model not only estimates the unique causal relationship of variables in a single step and their casual influence on one another across time, but also simultaneously covarying potential extraneous variance so that it cannot be mistakenly attributed to the variables of interest (Quartana, Wickwire, Klick, Grace, & Smith, 2010). Whereas the repeated measures model completes a series of independent repeated measures in hierarchical groupings (Heck & Thomas, 2015). The hierarchical groupings may lead to inaccurate information about the relationships among the variables. The nested model would require multiple steps to fully answer the hypotheses. The cross-lagged SEM model allowed for the examination of all

repeated measures over time without hierarchical nested groupings. Overall, the cross-lagged SEM was the best analysis to answer the hypotheses.

### **Issues with lagged or bidirectional effects**

While there are many positive aspects of this model, there are also a range of issues that could occur when utilizing this type of analysis. One issue regarding cross-lagged models in general is that the parameters within the model are not specific to individual level-change within participants observed over time, only overall change (Selig & Little, 2012). Meaning that although the model is affected by individual participant changes, the model cannot assess for the specific within-individual change across time. Thus making it difficult to make conclusions based on specific participant characteristics regarding change in variables over time. Furthermore, cross-lagged models assume that all variables are measured without measurement error (Bollen & Curran, 2006). However, if there is measurement error present but not accounted for, casual relationships between variables may be underestimated and could potentially be inaccurate estimates of the true relationship between variables. As one of the main advantages of this model is to determine the accurate causal relationships over time, this issue must be accounted for.

There is also a concern for latent variables that indicate the main effects are not normally distributed. If these variables are not normally distributed, it is likely that parameter estimates identified by multiple procedures would not be consistent (Tomarken & Waller, 2005). Variable stability is also a concern for this model as it may be overestimated (Curran, 2003). Meaning, there may be a correlating effect of asking the same question more than once, which may also attribute to measurement error for the same items over time, which could lead to inaccurate conclusions about causal relationships. Additionally, the reliability of variables over time is also

a concern for lagged models (Selig & Little, 2012). Meaning the measurement properties may change over time, which could lead to inaccurate conclusions of the data. Attrition is also an issue for both lagged and bidirectional models (Selig & Little, 2012). As with any longitudinal study, the issue of attrition can impact overall results and causal conclusions depending on the time in which participants dropped out and if the demographics of the participants that dropped out of the study occurred in a predictable way. There is also an issue regarding any unmeasured or uncontrolled variables that correlate or impact the predictor variable (Cole & Maxwell, 2003). Without controlling for these unmeasured confounding variables, there is the possibility to have inflated estimates of causal relationships between variables.

### **Estimation method**

In an SEM, the estimation method is used to describe how the parameter estimates are obtained for any given SEM model. The maximum likelihood (ML) estimation method is the most widely used iterative estimation method utilized with SEMs and was used as the estimation method for the current study (Bollen & Curran, 2006). Notably, ML estimation assumes that there is multivariate normal distribution for all observed variables, there are not any missing values from the data set, and that observations are independent of one another, and the model is correctly specified. Specifically, this method computes repeated attempts to estimate the number of parameters needed to determine the “best fit” of the model for the data (Bollen & Curran, 2006).

The root mean square error of approximation (RMSEA) is one of the most widely used assessment of fit measures when analyzing data through SEM. The RMSEA provides an overall assessment of the extent to which the model is supported by the data. RMSEA was utilized as the method in the current analysis for the assessment of fit. RMSEA is arguably one of the

strongest assessment of fit/misfit measurement tools, as it is a standardized measure that is not attached to the specific scales of the measured variables, and the approximate distributional properties of the RMSEA are known (Kelley & Lai, 2011). This information provided by the RMSEA makes it possible to obtain parametric confidence intervals and perform subsequent hypothesis tests, as well as utilize it descriptively. To determine the assessment of fit, the present study utilized values of 0.01 or less to indicate an excellent fit, values between 0.02 - 0.05 to indicate a good fit, values between 0.06 - 0.08 to indicate a mediocre fit, and values between 0.09 - 0.10 to indicate poor fit (Bollen & Curran, 2006). Additionally, the present study also examined the RMSEA 90% confidence intervals to determine the assessment of fit and examine the range of possible population parameters (Kelley & Lai, 2011).

### **Missing data**

I assessed for any potential missing data throughout my model within and across time. When assessing for missing data, there are three potential types: missing completely at random, missing at random, missing not at random (Bollen & Curran, 2006). Missing completely at random (MCAR) indicates that there is no relationship between the missing data point(s) and any data value of the variables. Often, MCAR indicates data missing solely by the design of the study. Missing at random (MAR) indicates that observed data of some variables are related to missing values of variables and there is observable reason as to why this set of data is missing. Notably, MAR is less restrictive than MCAR, as it allows the missing values to be related to at least one factor in the dataset. Missing not at random (MNAR) indicates the probability of missingness to be related to the explanatory factor of the dependent variable. MNAR is the least restrictive condition of missing data (Bollen & Curran, 2006).

## Sample size

There are a few ways to determine an appropriate sample size in a cross-lagged SEM model. For the present study, sample size was determined by  $N > 50 + 8p$  (Tonidandel, Williams, & LeBreton, 2014). This equation was selected because it is the more appropriate than the similar ratio alternatives that have been utilized for SEM models that use a stepwise regression. This equation has been endorsed as the most appropriate method for SEM analyses that have more than seven parameters and uses multiple correlation. As highlighted in Figures 1 and 2, there were 19 proposed parameters, when inputted into the equation indicates that there must be greater than or equal to 202 participants in the sample size ( $50 + 8 \cdot 19 = 202$ ). As the present study includes 4700 participants, it meets the sample size requirement.

Figure 1. Proposed cross-lagged structural equation model of mother stress and children's externalizing behavior over time.

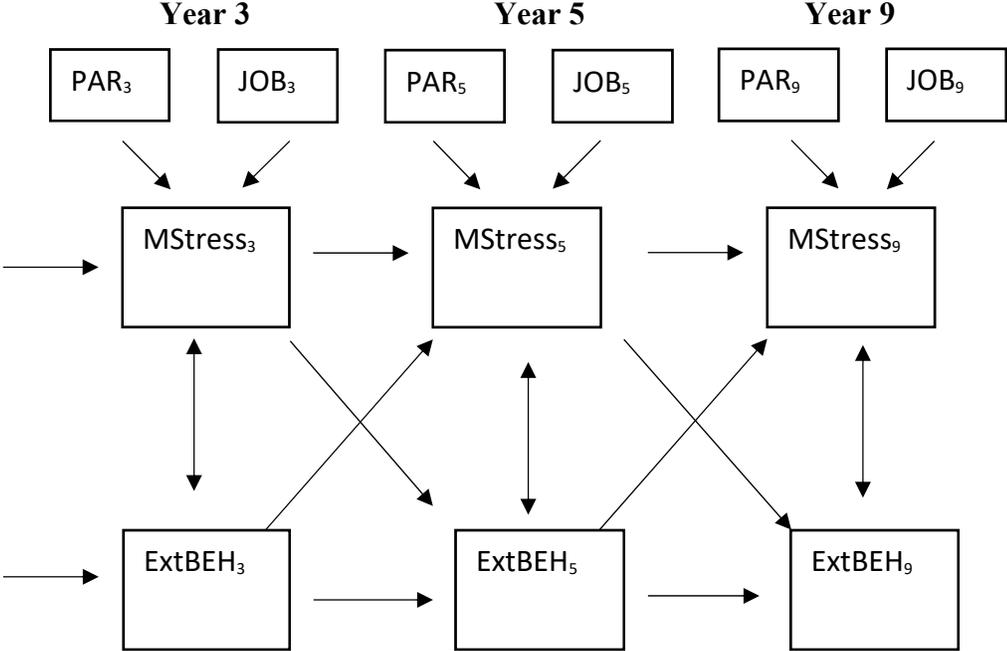
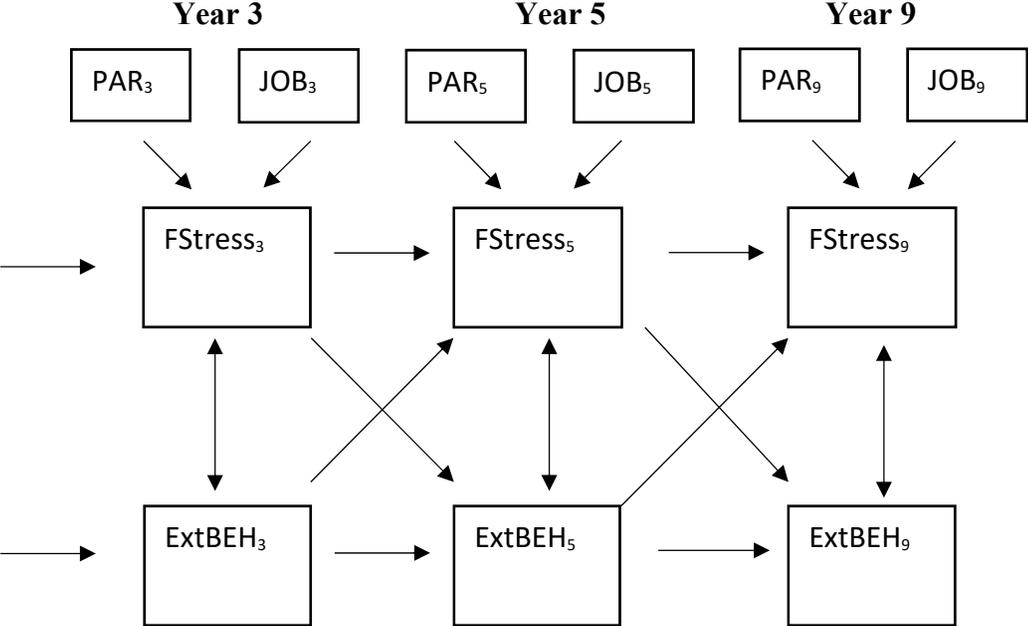


Figure 2. Proposed cross-lagged structural equation model of father stress and children's externalizing behavior over time.



## **Chapter IV: Results**

The current chapter presents the results of all analyses conducted to evaluate the proposed research questions. Results from primary analyses are described and discussed throughout the chapter. Reasons for the modifications to the proposed analyses are also explained throughout this section. Initially, a cross-lagged structural equation model across three phases (years three, five and nine) was proposed to determine the difference between mothers' stress on externalizing behavior problems in early childhood and fathers' stress on externalizing behavior problems in early childhood. However, due to a significantly large amount of missing data within the year nine mother parenting stress variable, the year nine phase was removed from both cross-lagged analyses. The following analyses were exported from SPSS and conducted using the open-source statistical software program RStudio Version 1.0.136 utilizing the lavaan package Version 0.5-23.1097.

### **Descriptive Statistics**

The FFCWS included a sample of 4700 births, with 3600 non-marital, 1100 marital parents in the United States. Descriptive statistics were derived in SPSS. Notably, due to difficulties with a substantial amount of missing data encountered while conducting the cross-lagged SEM, listwise deletion was used to eliminate all participants with missing data at any point in the study from the final sample. Therefore, the total sample used in the current study was significantly smaller than the original FFCWS sample. After the removal of all participants with missing data at any phase in the study, the final sample consisted of 1,010 births. Therefore, 1,010 mother and father pairings were in the final sample used to analyze the proposed research questions.

The same sample was used to answer both research questions. The self-reported

racial/ethnic background of the final mother participants included in this sample was as follows: White ( $n = 319$ ); Black ( $n = 521$ ); Asian ( $n = 23$ ); American Indian ( $n = 17$ ); Other ( $n = 115$ ); Hispanic/Latino origin or descent ( $n = 204$ ); Mexican ( $n = 104$ ); Puerto Rican ( $n = 35$ ); Cuban ( $n = 3$ ); South American ( $n = 10$ ); Central American/Caribbean ( $n = 6$ ); Other Hispanic/Latino origin ( $n = 32$ ). The self-reported racial/ethnic background of the final father participants included in this sample was as follows: White ( $n = 283$ ); Black ( $n = 511$ ); Asian ( $n = 11$ ); American Indian ( $n = 24$ ); Other ( $n = 93$ ); Hispanic/Latino origin or descent ( $n = 190$ ); Mexican ( $n = 96$ ); Puerto Rican ( $n = 34$ ); Cuban ( $n = 5$ ); South American ( $n = 10$ ); Central American/Caribbean ( $n = 5$ ); Other Hispanic/Latino origin ( $n = 31$ ).

Relationship status with child's other parent was another demographic variable that was explored within this study across time. Mother and father self-reported responses to relationship status was examined separately at the two separate phases (years three and five). Participants identified their relationship status as "married", "romantic", "separate", "divorced", "friends", "no relationship", "don't know", or "refuse to answer". The self-reported relationship status for year three of final mother participants in this sample was as follows: Married ( $n = 411$ ); Romantic ( $n = 331$ ); Separate ( $n = 43$ ); Friends ( $n = 159$ ); No Relationship ( $n = 66$ ). The relationship status for year three of final father participants in this sample was as follows: Married ( $n = 423$ ); Romantic ( $n = 349$ ); Separate ( $n = 44$ ); Friends ( $n = 153$ ); No Relationship ( $n = 40$ ); Refuse to Answer ( $n = 1$ ). The self-reported relationship status for year five of final mother participants in this sample was as follows: Married ( $n = 421$ ); Romantic ( $n = 219$ ); Separate ( $n = 55$ ); Divorced ( $n = 30$ ); Friends ( $n = 182$ ); No Relationship ( $n = 103$ ). The self-reported relationship status for year five of final father participants in this sample was as follows: Married ( $n = 433$ ); Romantic ( $n = 236$ ); Separate ( $n = 58$ ); Divorced ( $n = 23$ ); Friends ( $n = 185$ );

No Relationship ( $n = 74$ ); Don't know ( $n = 1$ ).

With this significantly large removal of sample participants, the demographic differences between the original sample of participants and the new sample of participants were examined. Minimal percentage demographic differences were noted between the self-reported racial/ethnic background of all participants within the samples. Moderate percentage differences were noted for father participants that self-reported as Black between the two samples: Original sample ( $n = 1870$ , 38.2%); modified sample ( $n = 511$ , 50%). Notably, for the original sample there were 56 missing self-reported racial/ethnic background information obtained for mothers, 34 participants reported that they did not know, and 1 participant refused to respond. Of note for the original sample there were 1,115 missing self-reported racial/ethnic background information obtained for fathers, 24 participants reported that they did not know, and 4 participants refused to respond. Notably, for the modified sample, there were 8 missing self-reported racial/ethnic background information obtained for mothers, and 7 participants reported that they did not know. Of note, for the modified sample, there were 79 missing self-reported racial/ethnic background information obtained for father, 6 participants reported that they did not know, and 3 participants refused to respond.

Additional small to moderate percentage differences were noted for demographic variables surrounding self-reported parental relationship status. Moderate differences were identified for self-reported mothers' relationship status in year three between the two samples: married original sample ( $n = 1356$ , 27.7%); married modified sample ( $n = 411$ , 40%); romantic original sample ( $n = 1056$ , 21.6%); romantic modified sample ( $n = 331$ , 32%); no relationship original sample ( $n = 793$ , 16.2%); no relationship modified sample ( $n = 66$ , 6.5%). Moderate differences were identified for fathers' self-reported relationship status in year three between the

two samples: married original sample ( $n = 1284$ , 26.2%); married modified sample ( $n = 423$ , 41%); romantic original sample ( $n = 1002$ , 20.5%); romantic modified sample ( $n = 349$ , 34.6%); no relationship original sample ( $n = 793$ , 16.2%). Moderate differences were identified for mothers' self-reported relationship status in year five between the two samples: married original sample ( $n = 1292$ , 26.4%); married modified sample ( $n = 421$ , 41.7%); romantic original sample ( $n = 671$ , 13.7%); romantic modified sample ( $n = 219$ , 21.7%); no relationship original sample ( $n = 948$ , 19.4%); no relationship modified sample ( $n = 103$ , 10.2%). Moderate differences were identified for fathers' self-reported relationship status in year five between the two samples: married original sample ( $n = 1211$ , 24.7%); married modified sample ( $n = 433$ , 42.9%); romantic original sample ( $n = 663$ , 13.5%); romantic modified sample ( $n = 236$ , 23.4%). Although there does appear to be some demographic differences between the participants from the original sample to the modified sample surrounding self-reported relationship status with the other parent of their child based off of the percentage differences between groups, it appears to be missing at random. Specifically, it appears that the modified sample includes a higher likelihood that the completed data of respondents that stayed are married to the child's father than the original sample had. The differences between all demographic differences between the original and the modified sample are presented in Table 1.

Table 1

*Frequencies of Demographic Variables by Sample*

	<b>Modified</b>	<b>Original</b>
White	319 (31.6%) <sup>a</sup> 283 (28%) <sup>b</sup>	1480 (30%) <sup>a</sup> 1117 (22.8%) <sup>b</sup>
Black	521 (51.6%) <sup>a</sup> 511 (50%) <sup>b</sup>	2389 (48.8%) <sup>a</sup> 1870 (38.2%) <sup>b</sup>

Asian	23 (2.3%) <sup>a</sup> 11 (1.1%) <sup>b</sup>	133 (2.7%) <sup>a</sup> 103(2.1%) <sup>b</sup>
American Indian	17 (1.7%) <sup>a</sup> 24 (2.4%) <sup>b</sup>	222 (4.5%) <sup>a</sup> 144(2.9%) <sup>b</sup>
Other	115 (11.4%) <sup>a</sup> 93 (9.2%) <sup>b</sup>	580 (11.8%) <sup>a</sup> 521(10.6%) <sup>b</sup>
Hispanic	0 (0%) <sup>a</sup>	3 (.1%) <sup>a</sup>
Married	411 (40%) <sup>c</sup> 423 (41%) <sup>d</sup> 421 (41.7%) <sup>e</sup> 433 (42.9%) <sup>f</sup>	1356 (27.7%) <sup>c</sup> 1284 (26.2%) <sup>d</sup> 1292 (26.4%) <sup>e</sup> 1211 (24.7%) <sup>f</sup>
Romantic	331 (32%) <sup>c</sup> 349 (34.6%) <sup>d</sup> 219 (21.7%) <sup>e</sup> 236 (23.4%) <sup>f</sup>	1056 (21.6%) <sup>c</sup> 1002 (20.5%) <sup>d</sup> 671 (13.7%) <sup>e</sup> 663 (13.5%) <sup>f</sup>
Separated	43 (4.3%) <sup>c</sup> 44 (4.4%) <sup>d</sup> 55 (5.4%) <sup>e</sup> 58 (5.7%) <sup>f</sup>	238 (4.9%) <sup>c</sup> 174 (3.6%) <sup>d</sup> 262 (5.3%) <sup>e</sup> 190 (3.9%) <sup>f</sup>
Friends	159 (15.7%) <sup>c</sup> 153 (15.1%) <sup>d</sup> 182 (18%) <sup>e</sup> 185 (18.3%) <sup>f</sup>	742 (15.1%) <sup>c</sup> 555 (11.3%) <sup>d</sup> 760 (15.5%) <sup>e</sup> 629 (12.8%) <sup>f</sup>
No Relationship	66 (6.5%) <sup>c</sup> 40 (4%) <sup>d</sup> 103 (10.2%) <sup>e</sup> 74 (7.3%) <sup>f</sup>	793 (16.2%) <sup>c</sup> 276 (5.6%) <sup>d</sup> 948 (19.4%) <sup>e</sup> 377 (7.7%) <sup>f</sup>
Divorced	30 (3.0%) <sup>e</sup> 23 (2.3%) <sup>f</sup>	127 (2.6%) <sup>e</sup> 80 (1.6%) <sup>f</sup>

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*Note.* Modified  $n = 1010$ . Original  $n = 4898$ .

<sup>a</sup>Data for mothers' participants; <sup>b</sup>Data for fathers' participants; <sup>c</sup>Data for mothers' year three participants; <sup>d</sup>Data for fathers' year three participants; <sup>e</sup>Data for mothers' year five participants; <sup>f</sup>Data for fathers' year five participants

## Technical Issues

### Missing Data

Repeated complications were encountered during initial attempts to test the proposed model with all three phases (years 3, 5, and 9) and the original study participants ( $n = 4898$ ). Specifically, the proposed model with the original participants demonstrated substantial negative variance with the mother parenting stress year 9 data and the model would not identify. Upon investigation, it was determined that the large majority of the data in this variable were missing. Given the significant amount of missing data from this variable, it was decided that the removal of the year 9 phase from the model was the best option to handling this amount of missing data within one of the main variables. An additional goal of the removal of this variable was the possible reduction of negative variance in the model. As the removal of this variable shifts the year nine structure of the model, it was decided to remove the entire mothers' year nine phase from the current study. The year nine phase was also removed from the fathers' model for consistency. Upon elimination of the year nine phase in both models, continued complications were encountered with both of the models regarding negative variances and the model not identifying. Upon examination, it was identified within the data that there was still a substantial amount of seemingly missing at random data throughout most of the variables. Due to the large amount of missing data within the dataset, listwise deletion was utilized to eliminate all cases that contained a missing item at any phase in the model. This resulted in the final sample size that was used for both the mothers' and fathers' cross-lagged SEM models ( $n = 1010$ ). Thus, given the substantial amount of missing data within the dataset, the proposed model was reduced and the number of participants was significantly decreased.

Given these changes, results of the analyses will reflect the modified model illustrated in

Figures 3 and 4. Although these changes to the proposed model allowed for further analysis of the given model, the reduction of variables in the model also caused additional challenges which prevented the ability to conduct additional analyses.

### **Attempted Analyses**

Generally, a confirmatory factor analysis (CFA) or an exploratory factor analysis (EFA) are preliminary statistical analyses that are conducted before a primary analysis of structural equation modeling to confirm the structure before attempting to fit the model. However, during the initial attempt for the primary analysis of a CFA or EFA, with both phases (years 3 and 5), repeated complications were experienced. Specifically, the covariance matrix was not positive and the model fit was poor. Attempts to increase the amount of iterations within the analysis were made. However, this did not resolve issues with this analysis. Given the small size of the modified model without the year nine data, it was decided that an EFA or a CFA would not be conducted for this study as the size of the model was likely impacting the ability to fully execute this analysis.

Following the decision to not run a CFA or an EFA for the current study, the full cross-lagged SEM for both models was attempted. However, repeated complications were encountered. In particular, the model would not converge and negative variances were identified for both models. Listwise deletion was conducted to alleviate difficulties within the model. Upon listwise deletion, the negative variance was alleviated, but the model continued to demonstrate difficulties identifying and computing standard errors.

## Main Analysis

### Research Question 1

Do mother stress and father stress levels differ on the impact of externalizing behavior problems in early childhood over time?

**Hypothesis 1.** Mother stress impacts externalizing problem behaviors significantly more than father stress over time.

**Hypothesis 2.** Fathers exhibiting high levels of stress will not correlate with high levels of externalizing behavior problems in children over time.

### Results for Question 1

As stated in chapter three, cross-lagged sequential equation modeling (SEM) was conducted to answer all research questions examining the relationship between parent stress and externalizing behavior problems in children over time. Two separate cross-lagged SEM models were submitted for analysis to examine the differences between mothers' stress and fathers' stress on externalizing behavior problems over time.

#### Mothers' Model

As the cross-lagged SEM mothers' model continued to demonstrate difficulty identifying the model after the removal of the year nine phase and listwise deletion, mother parent stress year three and mother overall stress year three were fixed to 1 to give the analysis a starting point. Following fixing these coefficients, the model was then able to successfully identify. For the mothers' model, the Likelihood Ratio Chi-square value suggested there was not a statistically significant difference between the model and the data,  $X^2_{(6)} = 10.709, p = .098$ . Inspection of fit indices indicated the model was a good fit, with RMSEA = .028 (90% confidence interval = 0.000 - 0.054) and CFI .994. These fit indices indicated that the model fit well with the data

(Kelley & Lai, 2011; Schreiber, Stage, King, Nora, & Barlow, 2006). The  $R^2$  measures indicated that most measures are predicting the variables moderately well, with the exception of job stress in both years three and five, and externalizing behaviors in year five. The  $R^2$  estimates of all variables are displayed in Table 2.

Table 2

*R<sup>2</sup> Estimates of Variables in Final Mothers' Model*

Variable	R <sup>2</sup>
MPstress3	0.638
MJstress3	0.015
MPstress5	0.782
MPstress5	0.003
Ex5	0.199
S3	0.751
S5	0.543

Results indicated that most path estimates for the overall mothers' model were statistically significant. Standardized beta coefficients of the path estimates were variable from small to large (ranging from .058 – .884) in the hypothesized directions. Specifically, the externalizing behavior problems variable at year three was significantly positively related to the externalizing behavior problems variable at year five ( $\beta = .517$ ,  $SE = .090$ ,  $p < .05$ ).

Additionally, the overall self-reported stress variable at year three was positively related to the overall self-reported stress variable at year five ( $\beta = .367$ ,  $SE = .090$ ,  $p < .05$ ). Furthermore, self-reported parenting stress in year five is significantly positively related to self-reported overall

stress in year five ( $\beta = .884$ ,  $SE = .496$ ,  $p < .05$ ). Notably, negative relationships were identified for the parent-reported externalizing behavior variable in year three and the self-reported overall stress variable at year five, the parent-reported externalizing behaviors variable year three and the self-reported overall stress variable year three, as well as the reciprocal relationship between the parent-reported externalizing behaviors variable at year five and the self-reported overall stress variable year five. Of note, there were not statistically significant effects for the estimate between self-reported overall stress at year three and parent-reported externalizing behavior problems at year five, self-reported parenting stress year three related to self-reported overall stress year three, self-reported job stress year five related to self-reported overall stress year five, as well as the estimate for the reciprocal relationship between self-reported overall stress at year three and parent-reported externalizing behavior at year three. Path estimates for the overall model are displayed in Table 3.

Table 3

*Cross-Lagged Path Estimates for Overall Mother Model*

Path	B	SE	$\beta$
<i>Latent Variables</i>			
Parenting stress <sup>a</sup> – Stress <sup>a</sup>	1.00		.799
Job stress <sup>a</sup> - Stress <sup>a</sup>	.092*	.029	.123
Stress <sup>a</sup> - Stress <sup>b</sup>	1.00		.738
Parenting stress <sup>b</sup> – Stress <sup>b</sup>	1.567*	.496	.884
Job stress <sup>b</sup> – Stress <sup>b</sup>	.060	.036	.058
<i>Regressions</i>			
Stress <sup>a</sup> – Externalizing behaviors <sup>b</sup>	.331	.171	.165

Externalizing behaviors <sup>a</sup> – Externalizing behaviors <sup>b</sup>	.450*	.090	.517
Externalizing behaviors <sup>a</sup> – Stress <sup>b</sup>	-.058*	.020	-.181
Stress <sup>a</sup> – Stress <sup>b</sup>	.271*	.090	.367
<i>Covariances</i>			
Externalizing behaviors <sup>a</sup> – Stress <sup>a</sup>	-.541	.660	-.117
Externalizing behaviors <sup>b</sup> – Stress <sup>b</sup>	-.896*	.417	-.249

*Note.* B = unstandardized estimate. SE = standard error of the estimate.  $\beta$  = standardized estimate.

<sup>a</sup>Data for variable collected during year three phase

<sup>b</sup>Data for variable collected during year five phase

\* $p < .05$

### Fathers' Model

As the cross-lagged SEM fathers' model continued to demonstrate difficulties with the model not identifying after the removal of the year nine phase and listwise deletion, father parent stress year three and father overall stress year three were fixed to 1 to give the analysis a starting point. Following fixing these coefficients, the model was then able to successfully identify. For the fathers' model, the Likelihood Ratio Chi-square value indicated there was a statistically significant difference between the model and the data,  $\chi^2_{(6)} = 28.371, p < .000$ . Inspection of fit indices indicated the model was a mediocre fit, with RMSEA = .061 (90% confidence interval = 0.039 - 0.084) and CFI .968. These fit indices indicated that the model fit relatively well with the data (Kelley & Lai, 2011; Schreiber, Stage, King, Nora, & Barlow, 2006). The  $R^2$  measures indicated that most measures are predicting the variable moderately well, with the exception of self-reported job stress in both years three and five, and parent-reported externalizing behaviors in year five. The  $R^2$  estimates of all variables are displayed in Table 4.

Table 4

*R<sup>2</sup> Estimates of Variables in Final Fathers' Model*

Variable	R <sup>2</sup>
FPstress3	0.537
FJstress3	0.017
FPstress5	0.821
FPstress5	0.016
Ex5	0.219
S3	0.715
S5	0.463

Results indicated that most path estimates for the overall fathers' model were statistically significant. Standardized beta coefficients of the path estimates were largely variable (ranging from .014 – .906) in the hypothesized directions. Specifically, the parent-reported externalizing behavior problems variable at year three was significantly positively related to the parent-reported externalizing behavior problems variable at year five ( $\beta = .478$ ,  $SE = .025$ ,  $p < .05$ ). Additionally, the self-reported overall stress variable at year three was positively related to the self-reported overall stress variable at year five ( $\beta = .333$ ,  $SE = .074$ ,  $p < .05$ ). Furthermore, self-reported parenting stress in year five is significantly positively related to the self-reported overall stress in year five ( $\beta = .906$ ,  $SE = .436$ ,  $p < .05$ ). This estimation was the largest in the model. Notably, negative relationships were identified for the parent-reported externalizing behavior variable in year three and the self-reported overall stress variable at year five, the reciprocal relationship of the parent-reported externalizing behaviors variable year three and the self-reported overall stress variable year three, as well as the reciprocal relationship between the

parent-reported externalizing behaviors variable at year five and the self-reported overall stress variable year five. Of note, there were not statistically significant effects for the estimates between self-reported overall stress at year three related to parent-reported externalizing behavior problems at year five, self-reported parenting stress year three related to self-reported overall stress year three, the reciprocal relationship of the parent-reported externalizing behaviors variable year three and the self-reported overall stress variable year three, as well as the reciprocal relationship between the parent-reported externalizing behaviors variable at year five and the self-reported overall stress variable year five. Path estimates for the overall model are displayed in Table 5.

Table 5

*Cross-Lagged Path Estimates for Overall Father Model*

Path	B	SE	$\beta$
<i>Latent Variables</i>			
Parenting stress <sup>a</sup> – Stress <sup>a</sup>	1.00		.733
Job stress <sup>a</sup> - Stress <sup>a</sup>	.100*	.029	.130
Stress <sup>a</sup> - Stress <sup>b</sup>	1.00		.729
Parenting stress <sup>b</sup> – Stress <sup>b</sup>	1.811*	.436	.906
Job stress <sup>b</sup> – Stress <sup>b</sup>	.137*	.038	.125
<i>Regressions</i>			
Stress <sup>a</sup> – Externalizing behaviors <sup>b</sup>	.134	.181	.062
Externalizing behaviors <sup>a</sup> – Externalizing behaviors <sup>b</sup>	.416*	.025	.478
Externalizing behaviors <sup>a</sup> – Stress <sup>b</sup>	-.020*	.010	-.067
Stress <sup>a</sup> – Stress <sup>b</sup>	.243*	.074	.333

### Covariances

Externalizing behaviors <sup>a</sup> – Stress <sup>a</sup>	-.065	.334	-.014
Externalizing behaviors <sup>b</sup> – Stress <sup>b</sup>	-.432	.343	-.122

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*Note.* B = unstandardized estimate. SE = standard error of the estimate.  $\beta$  = standardized estimate.

<sup>a</sup>Data for variable collected during year three phase

<sup>b</sup>Data for variable collected during year five phase

\* $p < .05$

### Research Question 2

Does the type of stress a parent is experiencing differ on measures of externalizing problem behaviors in early childhood?

**Hypothesis 1.** Mothers experiencing high levels of parent related stress will experience higher levels of externalizing behavior problems in their child more than fathers experiencing high levels of parenting stress.

**Hypothesis 2.** Father's experiencing high levels of job related stress will experience higher levels of externalizing behavior problems in their child more than mothers experiencing job related stress.

### Results for Question 2

As stated in chapter three, cross-lagged sequential equation modeling (SEM) was conducted to answer all research questions examining the relationship between self-reported parent stress and parent-reported externalizing behavior problems in children over time. The entire final sample after the removal of participants with missing data (N = 1010) was included in this main analysis. Two separate cross-lagged SEM models were submitted for analysis to examine the differences between self-reported mothers' stress and self-reported fathers' stress on parent-reported externalizing behavior problems over time.

The second research question required the examination of the indirect effect of self-reported parenting stress on parent-reported externalizing behavior problems. As the primary analysis did not conduct the indirect effects, additional statistical estimations were calculated. Indirect effects are traditionally estimated as the standardized or unstandardized product of direct effects within a path model. The indirect effect indicates that only part of the effect of one variable is transmitted to the other variable (Kline, 2011). Overall, there were negative indirect relationships between mother self-reported parenting stress and parent-reported externalizing behavior problems. Notably, there was a significant negative relationship between the year five mother self-reported parenting stress and parent-reported externalizing behavior problems ( $\beta = -.220, p < .05$ ). Notably, there were negative insignificant indirect relationships between both phases of father self-reported parenting stress and parent-reported externalizing behavior problems. Additionally, a second aspect of this question examined the indirect relationship of self-reported job stress on parent-reported externalizing behavior problems. Negative, weak, and insignificant relationships were identified for all relationships examined within both the mothers' and fathers' models at both years three and five. Path estimates for the indirect effects are displayed in Table 6.

Table 6

*Cross-lagged indirect path estimates*

Path	$\beta$
Mother Parenting Stress – Externalizing behaviors	-.093 <sub>a</sub>
	-.220 <sub>b</sub> *
Father Parenting Stress – Externalizing behaviors	-.010 <sub>a</sub>
	-.111 <sub>b</sub>

Mother Job Stress – Externalizing behaviors	-0.014 <sup>a</sup>
	-0.014 <sup>b</sup>
Father Job Stress – Externalizing behaviors	-0.002 <sup>a</sup>
	-0.015 <sup>b</sup>

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*Note.*  $\beta$  = standardized estimate.

<sup>a</sup>Data for variable collected during year three phase

<sup>b</sup>Data for variable collected during year five phase

\* $p < .05$

Figure 3. Final cross-lagged structural equation model of mother stress and children's externalizing behavior over time.

Note. \* $p < .05$

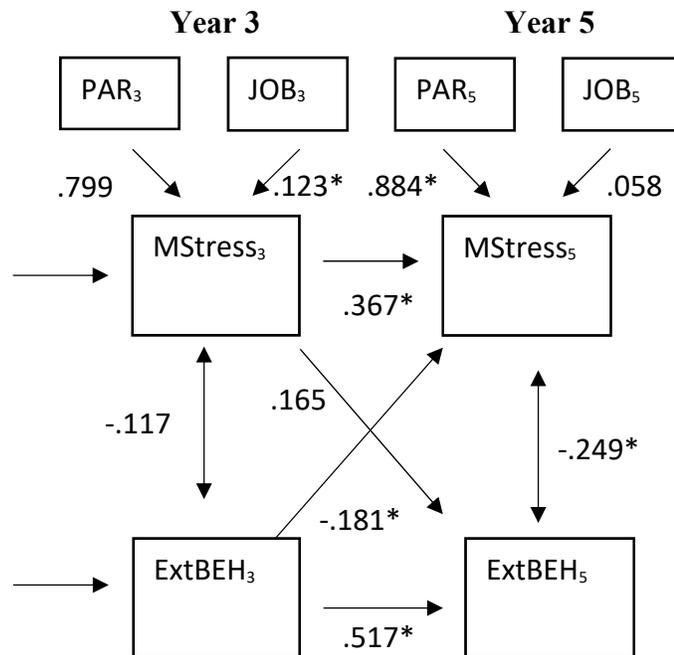
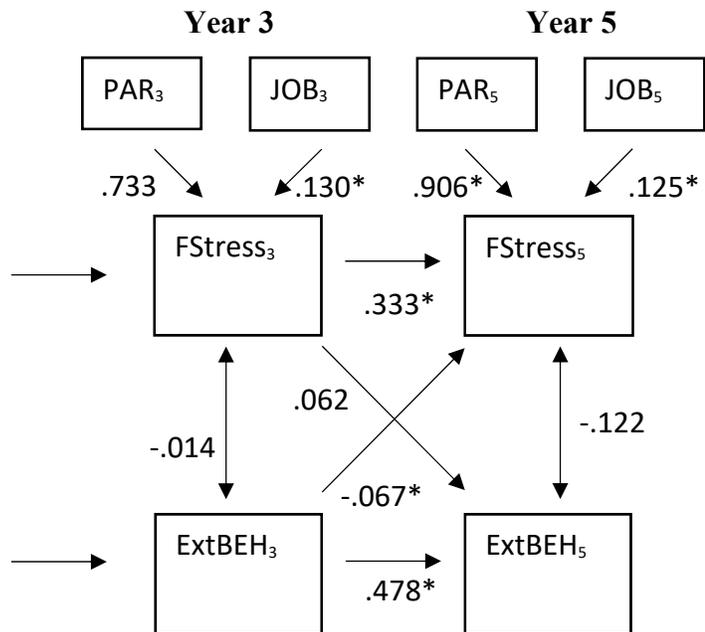


Figure 4. Final cross-lagged structural equation model of father stress and children's externalizing behavior over time.

Note. \*p < .05



## Chapter V: Discussion

The negative correlation of parenting stress on externalizing child behavior problems has been extensively explored in the literature. However, the correlation of differences between mother stress and father stress on externalizing behavioral problems over time in early childhood has an emerging research base that is unclear in overall findings. Given the instructional control asserted throughout behavioral parent training programs, it would be beneficial to have a better understanding of the impact of each parent's individual stress on externalizing behavior problems. In this chapter, I highlight the study's results and provide a discussion in response to the existing literature regarding parental stress on externalizing behavior problems. In this chapter, I will conclude with a discussion on the limitations of the study, future directions, and implications for practice.

The longitudinal Fragile Families and Child Wellbeing Study (FFCWS) dataset was used for the current study to examine the difference between mother stress and father stress on externalizing behavior problems over time. The researchers conducting the FFCWS collected immense amount of information on each individual parent and some information on the child and his or her behavior, including direct and indirect measures of child behavior, as well as information regarding the self-reported parental stress, job stress, and parental relationship status. Data were collected through parent interviews, direct observations, and in-home assessments. The parent interviews consisted of collecting information on the children's cognitive and emotional development, health, and home environment. Researchers collected all information from both mothers and fathers separately. The current study represented an investigation of the way in which variables related to stress (e.g., job stress and parental stress) impacted children's externalizing problem behaviors (e.g., hyperactivity, noncompliance, destruction of property,

physical aggression, verbal aggression, etc.). Previous research has focused on the negative correlation between parental stress in one parent and externalizing behavior problems, but little to no research is available examining the specific differences between mothers' stress and fathers' stress on children's externalizing behavior problems over time.

### **Summary of Results**

The current study utilized data from a nationally-representative, longitudinal dataset in which researchers collected a variety of data to examine the relationship between couples, parenting styles, and child behavior. For this study, the focus of the investigation involved the use of an ecological framework, with a specific focus on each parent separately, to explore the impact that different types of stress has on externalizing behaviors in children during the ages of three and five.

During initial attempts to test the mother cross-lagged SEM model with all three phase years (years 3, 5, and 9), repeated complications were encountered. Upon examination of the amount of missing data, listwise deletion was utilized to eliminate all participants that contained a missing item at any phase in the model and the year 9 phase was removed from the study given the significant amount of missing data from this particular phase.

### **Research Question 1**

First, the differences between the impact of self-reported mother stress and self-reported father stress upon parent-reported externalizing behavior problems over time was examined. Specifically, the initial hypothesis stated that self-reported mother stress would impact parent-reported externalizing behavior problems significantly more than self-reported father stress over time. Previous research demonstrated that fathers who reported lower levels of parenting stress also reported children with higher levels of problem behaviors (Mitchell & Cabrera, 2009).

Whereas, mothers who experience high levels of maternal stress have been found to be less-sensitive when engaging in parenting duties, which has been correlated with an increase in children's behavioral problem (Fish et al., 2004; Vaughn, Egeland, Sroufe, & Waters, 1979). Therefore, theoretically it would be expected that mothers' overall stress levels would significantly impact children's externalizing behavior problems over time more than fathers' overall stress levels.

However, notable differences emerged in both the mothers' SEM cross-lagged analysis and the fathers' cross-lagged analysis from the hypothesized relationship. Findings indicated that the relationship between self-reported overall stress during the year three phase and parent-reported externalizing behaviors in the year five phase was positive, meaning that as stress increased, so did children's externalizing behaviors. However, the relationship between these factors was extremely weak and insignificant for both the mother and the father models. The weak and insignificant relationship between these two variables indicated that it is not likely that the increase in externalizing behaviors in year five was due to the increased stress in the year three phase.

In other words, this finding suggests that neither mother stress nor father stress are more likely to impact children's externalizing behavior problems more over time. This discrepancy may have been due to the possibility that there are other, potentially stronger variables in the dataset that have a stronger predictive relationship on children's externalizing behavior problems. For instance, based on previous research, parenting discipline style is a variable that has consistently demonstrated a significant relationship with children's externalizing behavior problems that was not examined within this study but theoretically could have explained a

stronger relationship with externalizing behavior problems over time within this sample (Schindler et al., 2015; Smith et al., 2014).

A second layer in examining the differences self-reported mother stress and self-reported father stress have on parent-reported externalizing behavior problems in early childhood over time specifically focused on self-reported father stress level. It was hypothesized that fathers exhibiting high levels of stress would not correlate with high levels of parent-reported externalizing behavior problems in children over time. Previous research that focused on father stress found that those who reported lower levels of parenting stress also reported children with higher levels of problem behaviors (Mitchell & Cabrera, 2009). Theoretically, it would be expected that fathers' stress levels would not impact externalizing behavior problems over time. Findings from this study supported this hypothesis as the relationship between father stress at year three and externalizing behavior problems at year five was positive, albeit extremely small and insignificant. This finding indicates that it was unlikely that self-reported father stress was impacting an increase in children's externalizing behavior problems over time for this model.

Additionally, the reciprocal relationship between the parent-reported externalizing behavior and self-reported overall stress was examined for both years three and five. Overall, results demonstrated insignificant, negative, and weak relationships between these two variables. These results are consistent with the previous, yet minimal, research that has examined the specific impact that father stress has had on externalizing behavior problems. Thus, it is hypothesized that although father stress is not a variable that strongly impacts children's externalizing behavior problems over time, it is possible that there are additional father variables that were not examined within this study that may demonstrate a stronger explanatory

relationship, to children's behavior, such as fathers' positive engagement (Lee & Schoppe-Sullivan, 2017).

## **Research Question 2**

In the second research question, I examined the indirect effects that different types of parental stress has on externalizing behavior problems in early childhood. Previous research has indicated gender differences in response to stressful events; regarding life stressors, women were found to report events experienced by other people in their environment (e.g., family-related events, health-related events), whereas men were found to report more events regarding work, finances, and relationships with others (Matud, 2004). Therefore, theoretically, it would be expected that mothers reporting high levels of parent-related stress would report higher levels of externalizing behavior problems in their child more than fathers reporting high levels of parenting stress. However, notable differences emerged in both the mothers' SEM cross-lagged analysis and the fathers' cross-lagged SEM analysis from the hypothesized relationships.

Overall, findings from this study indicated that there were extremely weak and negative insignificant relationships between mothers' self-reported parenting stress and parent-reported children's externalizing behavior problems at the year three phase, as well as fathers' self-reported parenting stress and parent-reported children's externalizing behavior problems for both years three and five. Notably, the results indicated a weak yet significant negative relationship between mothers' self-reported parenting stress and parent-reported externalizing behavior problems at the year five phase. Meaning, as mothers' self-reported parenting stress increased, parent-reported children's externalizing behavior problems decreased. As this was examined as an indirect relationship, it is hypothesized that the contradictory results were possibly due to an additional variable that was not examined. Such a variable, such as parent discipline style or

parent-child quality time, could possibly demonstrate a stronger relationship with children's externalizing behavior problems, (Schindler et al., 2015; Smith et al., 2014). Additional findings indicated that parenting stress demonstrated a positive significant relationship with overall stress more than job stress for both mothers and fathers. Consequently, it appears that parenting stress impacts a parent's overall level of stress more than job-related stressors for both mothers and fathers equally.

Indirect effects of a second type of stress was examined to determine the relationship between self-reported job stress and parent-reported children's externalizing behavior problems in early childhood. Previous research has found that financial stress experienced by fathers had a significant negative impact on positive parenting practice, which correlated with increased child behavioral problems, whereas these stressors did not impact mothers' parenting practices (Ponnet, Van Leeuwen, & Wouters, 2014). Thus, theoretically, fathers experiencing high levels of self-reported job-related stress will experience higher levels of parent-reported externalizing behavior problems in their child than mothers.

Findings were once again discrepant from the hypothesized relationships. Overall, analyses indicated that insignificant negative relationships were identified for both mother and father models during years three and five, thus indicating that self-reported job stress had little to no effect on parent-reported externalizing behavior problems for mothers or fathers. Additionally, there were insignificant differences between the impact of self-reported mother job stress compared to self-reported father job stress on parent-reported externalizing behavior problems in early childhood. As job and financial status were not examined as part of the descriptive statistics, it is unknown in which job status or financial bracket the majority of the sample fell into. However, it is likely that job and financial stress occur in any financial bracket.

Thus, it is hypothesized that the discrepancy occurred due to the limited length of time that passed between phases. With the original proposed model, there would have been six years between time one and time three; however, with the modification of the model, there are only two years that passed in between. It is hypothesized that job stressors are slightly different than other variables examined throughout the model, as it may take longer for financial burdens or job stressors to impacting one's ability to parent. Therefore, it is hypothesized that if there were additional data points with extended lapsed time, results may have been different.

Overall, the results indicated that the best predictor of parent-reported externalizing behavior problems in children over time was the previous level of parent-reported externalizing behavior problems. Meaning, the relationship between parent-reported children's externalizing behavior problems in year three represented a stronger positive relationship with parent-reported children's externalizing behavior problems in year five than for any other path relationship in the model for both mothers and fathers. Theoretically, this can be best explained through ecological-systems theory. There appears to be a learned element of a child's externalizing behavior problems that has encouraged the likelihood that the child will engage in the behavior again over time. Additionally, the theory suggests that there is an interaction between the child and his or her environment that maintains the behavior, thus indicating a strong relationship with a variable that was out of the scope of this model, as previously explained.

### **Limitations**

One of the main limitations of the current study was missing data. There was a substantially large amount of missing at random data from the study, especially within the necessary variables needed for the current study. It is possible that the significant reduction of

participants may have changed the overall effects of the model, as certain descriptive statistics did not match the original descriptive statistics following this deletion.

The significant missing data led to an additional limitation, which was the elimination of the year nine data phase from both the mother and the father models. As the current study aimed to examine the differences between mother and father parenting stress on children's externalizing behavior problems over time, it would have been beneficial and representative of a stronger analysis to have more than two years to examine the growth of stress on behavior and vice versa. Thus, examining differences between only two time points limited my ability to fully analyze and interpret across time as originally proposed. While I was still able to examine and engage in my proposed analyses, it is likely that results could have been more fruitful and relationships between variables could have been stronger with an additional phase.

Another limitation of the current study was that children's externalizing behaviors were evaluated only by one parent. Specifically, the majority of the respondents considered to be primary caregivers during the in-home portion of the study were mothers as previously discussed in chapter three. Therefore, it is unknown if the one parent who did not complete the self-report would have rated the child's externalizing behavior problems differently than the parent who completed the survey. It is possible that the models may have been better identified if each parent model was also the same parent who reported their view of the child's behavior at that time (e.g., the fathers' model also contained the father-reported externalizing behavior problem and the mothers' model contained the mother-reported externalizing behavior problems). Thus, being able to fully see if fathers' stress impacted their view of their children's externalizing behavior problems may have made the models more accurate.

An additional limitation of the study was regarding the externalizing behavior problems variable. Specifically, the behavioral items in this variable were not consistent across both years. Behaviors were developmentally similar and comparatively evaluated the same type of behavior, but the specific item questions that the parent was asked from year three to year five for six out of the fourteen items were different. This is a limitation of the current study, as it would have been a better predictor of behavioral consistency or change if the items were the same over time.

Finally, all items utilized for analysis within the current study were self-report measures. While self-report measures offer a level of convenience and ease for the administrator and the examinee, they also represent a limitation for the study, as it leaves room for questioning of the validity of responses. As none of the questionnaires reported validity indices, it is unknown if the responses are accurate. It would have been helpful to also have qualitative data to compare responses to determine the validity and accuracy of responses. It is always more reliable and accurate to have multiple methods of data collection within a study.

### **Recommendations for Future Research**

Results from the current study suggest that further examination of similar models is warranted. As the effect sizes within the path model were variable, with many on the smaller size, it is likely that there are other variables within the dataset that were not examined that could have demonstrated a stronger relationship with externalizing behavior problems over time. Although these additional parenting variables potentially impacting children's externalizing behavior problems were beyond the scope of the current investigation, future research should include an investigation of these variables. Such relationships may have helped to better explain what parenting factors increase externalizing behavior problems in children over time, as parenting stress and job stress did not demonstrate a strong significant relationship. Importantly,

future research should include more comprehensive measures of parent factors that could impact externalizing behavior problems such as quality one-on-one time spent with the parent engaging in preferred activities, how much time the child lives with the parent, parenting discipline style, parenting temperament, and parent behavior related their emotional repose to situations. It is recommended that these measures include both observational and self-report informant report data, as the present study indicated limitations regarding only self-report informant data.

The limitation of missing data that led to the eventual removal of the year nine phase from both models provided evidence for the recommendation for future research that examined additional longitudinal relationships between parent qualities and their impact on externalizing behavior problems throughout early childhood. As the current study was unable to investigate this continued relationship through multiple years, more research is needed to determine if the present results maintain over more than two years or if they change as additional time passes. Similarly, additional research should investigate why certain relationships studied were not significant, but others were significant. Differences among present results and future directions may be attributable to amount of time living with the parent, quality time spent with parent, or parent disciplinary practices that were not addressed by the factors included in the current model.

It also may be beneficial to analyze specific demographic groups separately from one another. Examining a large range of a specific demographic difference, such as amount of time child lives with parent, in the same study that could potentially skew the data should be examined and controlled for. For example, children who live primarily with their mother may not demonstrate as strong of a relationship with some of the previously mentioned father variables, as the child only interacts with the father every other weekend or less. It is possible that this demographic difference could have a large impact on how a parent responds to problem

behaviors and fosters their relationship with their child given the amount of time spent with the child from week to week. Thus, it may be beneficial to analyze and compare these demographic groups separately to determine if there are differences among responses given this difference.

### **Implications for Practice**

The results of the current study identify the importance of parents understanding, identifying, managing, and learning skills related to parenting stress. For both mothers and fathers, the type of stress that impacted one's overall stress the most was by far parenting stress. Although results did not indicate a significant interaction with the relationship between parenting stress and children's externalizing behavior problems over the two year period that was examined, it is possible that as time continues that increased stress could lead to behavioral challenges as stress may impact negative parenting behaviors (Crnic, Gaze, & Hoffman, 2005). Therefore, it is important that parents understand and gain tools for managing parental stressors to the best of their abilities. Stress is something that will most likely never go away in an individual's life; however, stress is likely to be more manageable if psychoeducation is provided regarding the types of stress that impacts their overall stress level and subsequent effective parenting techniques.

School psychologists work closely with parents and family members through caregiver behavior management training programs. One of the main components of these programs focuses on psychoeducation for parents regarding various evidence-based parenting techniques. These programs identify techniques that have been identified through research as effective for specific behavioral challenges if implemented with integrity. The results of the current study found that a strong indicator of overall stress for parents was due to parenting stress, which were comprised of questions regarding their abilities of managing their child's behavior and their view

of self-care as a parent. As these items demonstrated a strong relationship with overall stress in both mothers and fathers, it is important that school psychologists speak to these stressors in behavior management classes. Additionally, as school psychologists have a knowledge of this relationship between parent stress and overall stress, curricula can be tailored to involve additional time in areas that focus on building a parent's confidence in his or her ability to manage his or her child's behaviors and developing self-care strategies.

In terms of psychoeducation, it is important that during behavior management programs, a portion of the time is spent focusing on the impact that parent stress may have on parenting practices over time given the results of previous research studies. The present study did not demonstrate a significant difference between mother parenting stress or father parenting stress, which speaks to the importance of having both parents present and active participants throughout the behavior management programs. Having both parents present ensures that consistent and accurate information is provided across caregivers. Often, only one caregiver attends the behavior management program, but the results of this study indicate that mothers and fathers have similar interactions with children's externalizing behavior problems and the stress of being a parent. Thus, such a finding highlights the importance to make every effort to include both caregivers throughout training.

Overall, as school psychologists engage in behavior management programs, it is vital that they understand that there is a strong relationship between parenting stress on one's overall stress level. Thus, if through the program, parents can learn skills and techniques to increase their behavioral management abilities, increase their instructional control, increase their confidence in their parenting abilities, and improve their self-care strategies, it is likely that the reduction of parenting stress will naturally occur. Subsequently, if parents improve their instructional control

and behavioral management abilities, it is likely that children's externalizing behavior problems will also decrease. Therefore, it is important when first working with a parent to identify their level of parenting stress. Once this is identified, general psychoeducation on parenting stress and self-care techniques should be implemented.

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